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# PRINCIPLES OF ECONOMICS

By
F. M. TAYLOR, PH.D.
Professor of Economics in the
University of Michigan

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NINTH EDITION

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# PREFACE

It is hardly necessary to say that this book is intended only for use as a textbook. There is perhaps more need to explain that it does not cover quite the same ground as the conventional type of such books. First, it contains less descriptive matter than is commonly offered. As this perhaps assumes more knowledge of economic phenomena than the average student in elementary economics possesses, it may be desirable to use along with this text, especially in the early stages of the course, some book on economic organization. At Ann Arbor we have been trying this plan during the current semester and expect to continue doing so next year.

But this book not only starts at a point somewhat later than the conventional textbook, it also stops at an earlier point. More specifically it stops short of any serious study of practical problems such as the Tariff, Business Cycles, and Labor Legislation. In so far as such problems receive any comment at all, this occurs in the process of illustrating economic principles,—no attempt being made to pass judgment on such problems taken as a whole. In short, this book is not intended to be a general treatise, the mastery of which will give the student a fairly adequate knowledge of the whole economic field. Instead, it is intended to perform just one special function in the student's economic education, namely, helping him to master the body of principles, mostly quite abstract, which are generally held by economic authorities.

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I have noted that this textbook is designed to perform a narrower function than is usually undertaken by such books. It may be well to add that it also differs from most others in that it lays more stress on securing for the student a very definite mastery of the accepted body of economic principles,—such mastery as the student of Chemistry or Physics is expected to acquire. This will explain the rather rigid methods of statement, the presentation of

principles in formal shape, and the extensive use of problems or examples which the student is expected to work out.

In view of the air of finality given by the method of presentation just remarked upon, it seems almost necessary to explain that this book has no real finality in the mind or purpose of the author. In fact, it is only a book in the making. It has been revised almost every year since it was first brought out in a series of separate leaflets fifteen or sixteen years ago; and the contract with the present publisher provides for a continuation of that policy. This does not mean that the author considers such a procedure requisite in order to keep up with fundamental changes in economic doctrine, but merely that, in working out his plan, he seems to find it necessary to resort to the method of trial and error. Each edition, therefore, contains experiments in analysis and presentation which are expected to show a need for revision and to get such revision in later editions. The necessity for this procedure is diminishing; but it has by no means disappeared. I expect, therefore, to continue the policy indicated for some time to come.

A cursory reading of this book will show that it makes little or no claim to originality in substance. Still, it would be quite impossible that any man who has taught elementary economics for thirty-four years and advanced courses in economic theory for twenty-eight years, should not secretly cherish the belief that he has made some trifling modifications in economic analysis which seem to partake of the nature of contributions. However, it is not worth while to give these more specific comment. If such modifications are of any significance the fair-minded student will note the fact; if not, the less said about them the better.

If it had not already been sufficiently brought out by implication in this preface, the reader of the text would very soon learn that the body of doctrine herein contained is, on the whole, rather markedly orthodox. I should have been sorry to be obliged to make it otherwise; for I should have been sorry to believe that our predecessors have left no body of doctrine which is to abide for an indefinite period in the future. I have been at some pains, however, to stress the point that the acceptance of orthodox economic doctrine is entirely compatible with giving support to whatever

degree of interference with the working of the present economic order may prove on the whole conducive to the welfare of society.

It is not my intention to enumerate the particular persons who in one way or another have contributed to the preparation of this text, chiefly, perhaps, because the list would be too long. In general I feel that I owe most to the small army of young men who in the course of the last fifteen years have assisted in teaching it at this university. From them I have received many useful criticisms and many valuable suggestions. The only person whose hand is largely shown in the present form of the book is Mr. Elmer C. Adams—now with the *Detroit Evening News*—who collaborated with me in the preparation of the fifth edition.

Among the changes from the first printing of the eighth edition which appear in the ninth edition, the most considerable is the complete rewriting of Chapter XXX. This was called for both to improve the method of presentation and to eliminate a theoretic error which overlooked the fact that the automatic correction of wrong factor prices requires two sets of reactions instead of just one. The next most important change is the substitution of a discussion covering a new topic for the matter which occupied pages 306 to 310—that matter being in part transferred to the appendix. Pages 2, 3, and 387 were rewritten and, I hope, improved. Lesser changes of unequal degrees of importance, appear on pages 24, 29, 99, 100, 152, 171, 261, 315, 316, 385, 386, 457, 469, 546, and 570.

FRED M. TAYLOR

Ann Arbor, Michigan
January 25, 1925

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# CHAPTER I

## INTRODUCTORY

**Goods.**—One of the most characteristic marks of a sentient being like man is to have *wants,*—we might almost say that to feel wants and secure their satisfaction is the very essence of living. Again, it is manifest that the satisfaction of any want depends on the presence of the *appropriate condition.* The satisfaction of physical hunger depends on having food at our disposal; the satisfaction of our craving for affection requires a certain attitude on the part of some other person or persons; the satisfaction of our love of beauty depends on the presence of beautiful objects; and so on. All objects or conditions on which the satisfying of wants is dependent, we shall call *goods,* using the term very broadly. The property of goods whereby they are thus able to satisfy wants we call their *utility.*

**Economic Goods.**—But, now, as students of economics, we are concerned, not with every kind of goods, but only with one particular kind known as *economic goods.* Our next duty, therefore, is to learn something about the characteristics which enable us to distinguish economic goods from other goods. Under the present economic order, such a characteristic, and one very easy of application, is to be found in what we call *exchange value* or, still more exactly, *price.*[1] The great majority of those goods which all recognize as economic enable their owner to command in exchange money or other economic goods; and, on the other hand, can be obtained by people who do not themselves produce those goods, only by giving in exchange money or other goods of the same general nature.

[1] This would not be true under a system of pure communism such as that which Russia apparently set out to establish in the fall of 1917. Under that system, there was to be no exchange, no selling and buying; yet there would surely be economic goods, since the people of Russia would continue, in the main, to feel the same wants, and so to need the same goods, as they had before the new system was introduced.

Since we are mainly concerned with the economics of the present order, it would perhaps be just as well at this stage of our study to leave the student to depend on the simplest test of what is and what is not an economic good. Experience, however, inclines me to think that considerable advantage would be gained if the student were to get at the very outset a deeper understanding of the real nature of economic goods. Before going on, therefore, we will attempt a little more thorough analysis of this matter.

**Economic Goods Conduct-Conditioned.**—In trying to find a mark of economic goods which is more fundamental than mere exchange value or price, we first note a characteristic which, though possessed by many non-economic goods, after all shuts out a considerable number of them, and is at the same time of very great importance. That characteristic may be defined as the property of being *conduct-conditioned*. That is, goods of this sort are goods which call on us for appropriate conduct: we need to act in a certain way to get these goods or to enjoy them. Thus, we cannot hope to possess the affection of our friends or the approval of our neighbors unless we conduct our lives in a suitable manner. The conduct-conditioned goods just named are, of course, not economic goods; but the statement made in respect to them surely applies to goods of the latter kind also. Thus, we cannot hope to have clothing or food unless we expend effort and trouble producing these things or producing other goods to exchange for them. Again, having obtained these goods, we cannot hope long to enjoy them unless we were willing to take care of them, store them, guard them against thieves, protect them from fire, and so on.

**Economic Goods Are Conduct-Determining.**—We have just seen that economic goods belong to a larger class which we have called conduct-conditioned goods. It quite obviously follows that such goods are also *conduct-determining:* we regulate our conduct with reference to them. Since we need them and since our having them is conditioned on appropriate conduct, we perforce must accept them as guides of our conduct.

**Economic Goods Have Effective Importance.**—We have seen that being conduct-conditioned and conduct-determining are characteristics of economic goods, though present in some non-economic goods also. Another closely allied characteristic is one we call *effective importance.* All goods, just because they are goods, have importance in some sense, since our welfare depends upon them. But, in order that goods should be conduct-determining, they must possess some characteristic other than having importance in the sense in which all goods have importance. That characteristic is one already noted, namely, being conditioned on conduct:—if we are to have those goods at all, we must regulate our conduct in the appropriate manner. This contrast between goods in general and conduct-determining goods, we bring out by saying that the former have only *generic* importance while the latter have *effective* importance also.

By generic importance we mean an importance which belongs to a thing as *one of a class* of things,—which belongs to air as air, to neckties as neckties. This generic importance is best apprehended by conceiving ourselves to be deprived of the thing in question altogether. Since air is indispensable to life, its generic importance is infinite; since we could get along pretty well *without* neckties, their generic importance is small. In contrast, effective importance is the importance which a thing *actually possesses in view of all the circumstances of the case,* the quality available, the cost of replacement, and so on. We call this effective importance because it is the importance *which counts in conduct.* Ordinarily air has *no* effective importance, though its generic importance is *infinite.* In contrast, neckties have *considerable* effective importance, though their generic importance is *trifling.*

The point just made, we must emphasize still further even at the risk of being tiresome. For a failure to understand it is the cause of a very wide-spread and persistent economic error. From highly intelligent and often highly educated people, we are constantly hearing talk like this: "The valuations which society puts on things are incredibly absurd. Things which serve only for the satisfying of the most trifling of wants are esteemed more highly than things on which our very existence depends. We rate the services of a

professional singer, a Caruso, far above those of a coal miner or a farmer; we esteem diamonds infinitely more than bread; we pay teachers, who perform one of the most important of social functions, less than the poorest workman in an automobile factory."

The answer to all this is that it confuses real, actual, effective importance with mere generic importance, and that it is usually[2] the business of society to concern itself, not with the generic importance of services or goods, but with their effective importance. To rate professional singers *as such* more highly than coal miners *as such* would of course be absurd; and we may be quite sure that very few people could be found who really do so. If we had to give up all the singers or all the miners, we should without a second thought decide against the singers. But, under all ordinary conditions, no such alternative is presented to us. We are going to continue to have both Carusos and miners: we are simply called on to decide whether we need *one more* Caruso more or less than we need *one more* miner. From this standpoint, there is no room for any answer but the one people generally make: Important as miners are, when considered as a class, one miner more or less is very unimportant as compared with one Caruso more or less. The real effective importance of a Caruso is much greater than that of a miner. Society is not acting foolishly or thoughtlessly or wickedly in acting just as it does in evaluating the services of a Caruso far more highly than those of a miner. On the contrary, its evaluations at this point are just what they ought to be: they express the real comparative importances involved.

## Illustrative Problems

1. The lumber of which a frame house is made has much more generic importance than the oxide of lead which enters into the paint which covers the house; yet a hundred pounds of lumber has much less effective importance than a hundred pounds of the oxide of lead. Explain and defend both statements.

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[2] Circumstances arise under which society is in danger of losing some economic good altogether or, anyhow, seeing its stock seriously reduced,—for example, its forests. In such case, it must have regard to totals as well as units.

2. Rain and sunshine, though having vast generic importance, have no effective importance as the phrase is used in the text. Defend that statement.

3. "Alone and lost in the desert, his last morsel of food and his last drop of water gone, he would cheerfully have given his gold, his yachts, his palaces, all his wealth, for the meager fare of the day laborer. At last the illusions which he shared with civilized society were fully dispelled. The unutterable folly of the comparative estimates which men commonly put on things became manifest. At last, on the verge of oblivion, he saw things in their true, their real, proportions." Criticize.

**Economic Goods Have Definitely Mensurable Importance.**—The preceding paragraphs have narrowed down the field of economic study to those goods which possess effective importance and which, therefore, are conduct-determining. But we must carry further this process of delimitation. Not all goods which have effective importance can properly be designated economic goods, though this is one of the most essential characteristics of economic goods. Thus such goods as the affection of our friends and the respect of our neighbors are by universal consent excluded from this class. What, then, is the characteristic the absence of which shuts these out,—the presence of which makes a particular good truly economic? This question is not an easy one to answer definitively; and probably would be answered differently by authorities of equal standing. I am disposed to set up, as this final distinctive characteristic of economic goods, the possession by such goods of a special sort of effective importance, namely an effective importance *which submits to more definite measurement* than the importance of non-economic goods of this same general class. Stated still more specifically, under the present order, anyhow, strictly economic goods consist of those conduct-determining goods the importances of which *can properly be measured and usually are measured in terms of money.*

**Economic Value.**—In the above discussion, I have purposely chosen to use the word *importance* in bringing out the distinctive features of conduct-determining goods, and, particularly, that class of such goods which we call economic. But, usually, we shall employ

for this purpose another term, namely, value. Exactly what significance ought to be attached to this term in economic discussions is not easily settled. In general, I am disposed to believe that the economist ought to have *in the background* of his mind the ordinary conception of value as *significance to the well-being of man.* Such a concept seems to me desirable as furnishing a link between the idea of importance and the idea of "conduct-determining." That is, because things have importance for us, they come to have value, and, because they have value, we regulate our conduct with reference to them. Perhaps the word "worth" helps to bring out this point. Conduct-determining goods are goods which are *worth troubling about.* In this broad sense of the word, value, all conduct-determining goods possess value. When, in addition, the particular goods in question belong to that division of conduct-determining goods which we call economic, their value, like the importance from which that value is derived, is one which is *capable of more definite measurement* than is true of the other type,—is capable, that is, of *pecuniary* measurement. By *economic value,* then, we shall understand *a worth or value thus capable of pecuniary measurement.* Or, in short, *economic value will be pecuniary value.*

**Economic Goods Have Pecuniary Value.**—It follows from what has just been said that, in defining economic goods, we may substitute for the phrase employed before, that is, importance capable of pecuniary measurement, the simpler phrase, pecuniary value. In other words, economic goods consist of that large class of conduct-determining goods which possess pecuniary value. But, now, in emphasizing as the final distinguishing characteristic of economic goods, pecuniary value, we must not forget that the word "value," as here used, means something deeper than exchange value, means worth or significance for man. This way of conceiving economic goods and value we shall frequently, though not always, have in mind when using these terms.[3] We should remember, however,

[3]Let me say once for all that the term "value," as well as some others, will be used in a variety of senses. The policy, quite characteristic of logical minds, of trying to employ every term in just one sense, is almost always impracticable and productive of narrowness in one's thinking. The

that if our particular problem is to decide whether or not a given good should be accounted an economic good, under the present order the simplest test, and usually a perfectly adequate one, is the presence or absence of exchange value or price.

**Wealth.**—Up to this point, in speaking of the goods with which the Economist is concerned, we have always referred to them as economic goods. I hardly need say that such goods are very commonly brought under the designation "wealth." This is a generic term applied to all goods which under the present order have exchange value or price, and only to such. This practice makes it comparatively easy to decide whether or not a given object should be accounted wealth. It also helps us to work out for ourselves the other characteristics which goods that are accounted wealth must possess. For we need have no great difficulty discovering what characteristics must be present in goods for which people are going to be willing to give money.

### Illustrative Problems

1. "In order to be an economic good—wealth—a thing must have utility,—must be capable of satisfying some want." Argue for the truth of this statement.

2. Show that in order to be wealth a thing must be appropriable and transferable.

3. Is the water flowing from a spring by the roadside wealth?

4. Is an amiable disposition wealth? A hundred tons of gold known to be lying on the surface of the moon? A vein of coal existing, but not known to be existing, under a Michigan farm?

5. It would cost a good deal of *labor* to cover the walls of the houses on Washtenaw Avenue with posters of a circus given two weeks ago. Would the result be wealth? What is the point to be made?

6. "A thing may have value even though it is *not useful:* e. g., an old stone prized by a collector." Point out the error.

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real thing has many sides and there are not words enough to express every different aspect of it by a different term.

7. When we call a man wealthy we mean that he possesses a relatively large amount of this world's goods. Should we understand this to mean that the possessions of the poor man are not wealth?

**Importance of Economic Study.**—The preceding paragraphs have cleared up the concept of economic goods and their distinguishing mark, economic value. That these goods and the phenomena connected with them deserve serious study of some sort no one would doubt. If scientific curiosity did not suffice, the fact that these goods are conduct-determining, that we must act suitably or go without them, would surely settle the matter. Since we cannot have them unless we act in certain ways with reference to them, it surely behooves us to learn something about them and the conditions necessary to fulfil if we are to have them, in order that we may adjust our conduct accordingly, for, behind all correct, suitable action, there is surely an art, a body of rules which tell us the course which we need to pursue; and behind such an art there must be a body of scientific knowledge on which said rules are based. Economic conduct is no exception to this rule—men need a body of rules to guide their economic conduct; and that body of rules must rest on a body of scientific knowledge with respect to economic phenomena. We, therefore, have highly practical and powerful motives for developing and studying a science of economics.

But just here is needed a word of caution. The scientific basis for any art, the body of knowledge lying behind any art, in most cases consists of materials derived from *a number of different sciences*. Thus, the art of making an automobile depends on the sciences of metallurgy, chemistry, physics, etc. To this rule, again, the art of economics furnishes no exception. This very making of an automobile just cited is in a sense a part of economic art, since an automobile is an economic good; and, hence, the art of economics, in the broadest sense, builds on the sciences of metallurgy, chemistry, physics, etc. Similar statements would apply to many other economic activities. In fact, with respect to most parts of that side of economic art which has to do with the producing of economic goods, that art builds on non-economic sciences. Thus, manufacturing in general builds on the sciences just mentioned in connection

with automobile production; farming builds on botany, zoology, chemistry, etc.; mining, on geology, mineralogy, mechanical engineering, etc. In other words, economics as a science does not claim to include the whole body of knowledge needed for the conduct of economic art.

**Scope of Economics.**—But here, again, we must not go too far. It is true that the art of economics builds on many non-economic sciences. Nevertheless, when all these other sciences have made their contribution, there are kinds of knowledge not yet provided which are found to be needed, and supplying these gives rise to our special science, commonly called economics, or until quite recently, political economy. As to just what should be recognized as the proper boundaries of economic science, authorities are not yet agreed. Still, when it comes to determining the principal topics to be treated, there is no great difference of practice among the best writers.

First, all agree in giving a very large amount of attention to the *processes or principles under which value or price are determined,* some even going so far as to include no other topic save as it has a pretty close relation to the determination of prices. Another subject receiving much attention is *distribution,* the processes and system under which the sharing of the wealth and income of a community among its members is effected. In the present economic order, this is little more than a special division of the theory of price, for the reason that the determination of the incomes of the individuals is largely a matter of the prices received by individuals for the services they sell to other persons. As respects *production,* bringing into existence economic goods, a matter which, at first sight, might seem to be the most important thing in economic science, a large part of this, as already indicated, is relegated to other sciences,—the physical or technological side almost entirely so. Economics, however, keeps to itself certain of the most general aspects even of the technique of production, notably, the general conditions of productive efficiency. Further, most of the productive processes in which *mental labor* plays a large part, especially if these concern the exchange side of the business, are studied in sciences usually grouped under the head of economics. Conspicuous examples of this are business organization,

business management, marketing, and accounting. Again, certain lines of productive activity—certain businesses in their entirety—are reserved for economic science. Examples are *banking* and the different kinds of *commercial* business, especially wholesale trade and foreign trade. Finally, the study of one public institution of the utmost importance in economic matters—money—is treated as being in a peculiarly important sense the task of economic science.[4]

**Artificial Conditions.**—In the above account of economic goods and economic phenomena, we have not hesitated to speak as if the case of economics and that of a science such as chemistry or physics were perfectly analogous. We ought now to remark on a difference of considerable importance between the phenomena with which we have to deal and the phenomena of the other sciences. The latter belong to a group of phenomena which are strictly natural, in the sense that they are not modified through conditions fixed by men. Economic phenomena, in contrast, belong to a group which are in no small degree artificial: they are influenced by conditions of human origin. Of course all phenomena are natural in the broadest sense of the term. But, obviously, some are natural in a fuller and deeper sense than others. Now, many economic relations are among the most truly natural and inevitable that can be formed; many economic phenomena would be just like those we are familiar with in the same connections, even if we lived like Crusoes or, at the opposite extreme, like a communistic society. But, in contrast with these, not a few economic phenomena would be very different from what they are now, provided the conditions fixed by men were altered. For example, if legal changes were introduced giving the state ownership of all the land, the amount of wealth enjoyed by many persons would be quite different; if all undertaking of production were legally left to the state, more or less conspicuous changes in price would probably take place; and, again, if the laws permitted us to own laborers like beasts of burden, this circumstance would surely modify many economic phenomena. It is plain also that such conditions may be brought about not only by formal legislation but by custom, conven-

[4] This does not apply to the technique of its manufacture.

tion, or formal agreements. Thus, a general boycott of manufacturers who employed non-union laborers would be an artificial condition of sufficient significance to influence wages and employment quite seriously.

**An Economic Order.**—The point just made, that artificial conditions play a considerable part in determining economic phenomena, naturally brings us to a concept which has already appeared in this text under the phrase "economic order." By this I mean *the totality of artificial conditions,* whether originating in law or custom, under which economic phenomena manifest themselves. Such a concept is necessary to the study of economic science because the potency of artificial conditions to influence economic affairs makes possible the existence of general situations in economic matters which differ so essentially that a body of scientific principles applicable to one of these would be quite inadequate for another. Many such economic orders are possible; but only three, or some combination of these, receive serious consideration. These three are the present order, socialism, and communism. Quite naturally, our study is largely limited to the present order. Not infrequently, however, that study is illuminated by imagining how things would work under a communistic or socialistic order.

**Unity of Economic Science.**—The emphasis just laid on the possible variations in economic principles growing out of artificial differences—differences in the particular economic order prevailing—must not be taken too seriously. A very large part of the science of economics, a much larger part than is commonly supposed, would be the same under any economic order. This applies not only to such technical matters as the most efficient methods of production, a thing which, of course, cannot be changed by legislation or custom, but also to the most distinctively economic of all the problems of our subject, *the theory of value in its deeper aspects.* By this I mean the problem, what are the true importances or values of goods inherent in a given situation, values which a wise socialistic government would try to make their guide in the conduct of economic affairs, and which the defenders of the present order claim are in a fairly

high degree represented in the system of prices automatically worked out under that order? The mature student of economic science and economic practice will, I think, be impressed by the essential oneness of fundamental economic phenomena under all systems and in all times and places, much more than by their differences.

**Economics a True Science.**—Up to this point, it has been assumed as a matter of course that economic phenomena will repay serious study, that such study will yield a body of knowledge which may properly be designated a science. This, perhaps, seems too optimistic, in view of the fact that we often hear people declare very positively that there is no economic science, that there are no economic principles, that in economic matters we could not make the smallest prediction with any hope of its being fulfilled. Such statements, however, are not to be taken seriously. Any person can, on the spur of the moment, make many predictions in economic matters, and look forward to their fulfilment with perfect assurance.

For example, if there should be a great falling off in wheat production next year, the price would certainly rise. If, by the introduction of new methods, the cost of producing almost any manufactured article were to fall fifty per cent,—monopoly being shut out—the price of such article would also fall. If the price of aluminum should decline fifty per cent there would doubtless take place a great extension of its use in the arts. If the government should begin to coin freely both gold and silver, putting only sixteen times as much silver into that kind of coin as it did of gold into that kind, when on the open market an ounce of gold was worth, say, forty ounces of silver, the silver would surely get the place of standard money while gold would go to a premium and rapidly disappear from circulation. And so one might go on. In short, economic phenomena, like any other phenomena, are governed by natural laws. If the group of phenomena in question are of such a kind that several almost equal forces are interacting, it may be impossible to anticipate the result, just as in complicated natural or physical sciences like physiology or meteorology. But in other cases, when only one or two of the forces in operation are of much significance, it will be comparatively easy to ascertain the probable outcome.

**Economics Abstract and Hypothetical.**—As respects its general method of procedure, economics does not differ essentially from other sciences. Like all thinking, studying, knowing, it has to be *abstract;* that is, it has to withdraw its attention from many of the causes and conditions affecting the phenomena studied, and confine that attention to a few of these. Further, economics is *hypothetical* as well as abstract. By this I mean that economics assumes a uniformity in the few causes and conditions which it elects to study, that in reality does not exist. Thus it not only confines its attention largely to the working of *intelligent selfishness* in economic affairs, ignoring the influence of religion, ethics, sympathy, and so on, but it also thinks of that intelligent selfishness as having a quite unreal uniformity in respect to both the stimuli to which it responds and the energy which it displays in making this response.

**Economic Abstraction Sound.**—Because of the characteristics just brought out, there is always danger that the results obtained from our study will have but little application to actual affairs. Such danger is present in all science, just because science is necessarily abstract. But the student of every subject, in making his abstractions, endeavors, of course, to choose for study those causes and conditions which are most fundamental and most powerful among those bearing on the case. In so far as he succeeds in this endeavor, the results which he obtains disclose the fundamental and principal relations among the phenomena involved. Like the teacher of anatomy, the teacher of economics begins by trying to supply the student with the main framework of his subject, a framework which is not easily seen because of the wealth of material which covers it within and without. Doubtless, in spite of all his care, the teacher of any subject may err in the picture which he gets and which he gives to others. In abstracting particular phases of his subject for study, he may choose trifling things instead of important ones and receive and impart a totally erroneous impression. But, surely, the chances are against that result. Certainly, in the case of the economist, there is a strong presumption that he has succeeded fairly well in avoiding such dangers, since, in spite of much seemingly violent controversy, there is very substantial agreement among leading

economic writers in respect to all of the most fundamental and most important doctrines. Textbooks prepared for the general course in economics, by adherents of different so-called schools of economic thought, show a very high degree of similarity.

**Apply Principles with Caution.**—We have just defended the actual abstractions made use of by economic science as being substantially sound, not confining attention to trifles and ignoring the more important causes and conditions at work. We must not, however, permit ourselves to forget that, after all, economic science is abstract. It does not attempt to cover the non-economic forces at work in any given case, nor even all the economic forces. Accordingly, it is of great moment that we should remember that we are not justified in making a direct and immediate application of the knowledge derived from a course like this to the settlement of practical problems, such as a protective tariff, governmental control of railroads, labor legislation, etc. Such procedure is not justified in any science; since, whatever the science one is studying, some time must be spent mastering those most general principles the actual working of which, though fundamental, is, after all, much modified by the operation of more superficial forces. In the case of economic phenomena, the too hasty application of fundamental principles to specific problems is even less justified than elsewhere, because of the great number of economic and non-economic forces, which are simultaneously acting at any given moment and which make the accurate disentangling of causes almost impossible. It is, therefore, quite important that the student should exercise much self-control at this point. In particular, he is urged to suspend final judgment on almost all great practical problems, such as free trade, socialism, trades unionism, etc., till he takes courses subsequent to Course 1.

In making use of the present text the advice just given is especially needed because, in the process of trying to secure a thorough comprehension of principles, it seems necessary to make many applications of those principles to actual problems. If, however, the student will remember that in these applications we are concerned *only with the economic* phase of the problem, while in actual life the problem has many other phases, he will realize that

at present he should attempt to reach a final opinion, not on the whole matter, but only on its economic phase.

As already implied in the foregoing, the course upon which we are just now entering is primarily intended as a foundation for later study. It is, therefore, devoted to a severe discipline upon fundamental principles and their applications. In general, our method of procedure is to introduce the concrete phenomena needing explanation; then to set forth in formal fashion the principle which embodies the explanation; to follow this with adequate illustration and argument; then to finish with illustrative problems the solving of which will insure that the student really masters the principle involved. We advise that, in preparing the lesson, the student begin by reading the text carefully, though not attempting to master it; that he then undertake to solve the illustrative problems, recurring to the statement and discussion of principles as he feels the need therefor; and that, finally, he go over the entire discussion once more in order the better to comprehend it as a whole. From the problems he can obtain the best results by writing out the solution. In doing this, he should not rest satisfied with categorical answers even when these seem sufficient, but rather take pains to *explain*—give reasons for—the conclusion reached. It is essential above all that he should cultivate clearness and precision of statement and, where argument is needed, should be careful to include every link of the chain and to put each in its proper place.

# CHAPTER II

## GENERAL SURVEY OF THE EXISTING ECONOMIC ORDER

In the introduction we developed, among other things, the notion of *an economic order*—a totality of conditions under which economic phenomena take place; and we explained that our study is mainly concerned with the particular economic order now existing,—the phenomena displayed under it and the natural laws governing those phenomena. Our first task, before undertaking a detailed study of the economic order, is to get a general view of it and familiarize ourselves with its most conspicuous features. To this task we shall devote ourselves in the present chapter and the next.

### I

### The Present Order One of Individual Exchange-Cooperation

The general situation in which men find themselves is this: First, they exist, and by the fact of their existence they have wants which imperatively demand satisfaction. Secondly, the satisfying of these wants depends on the possession of certain economic goods. Finally, the getting of the goods depends on some acts, efforts, of man himself. Speaking broadly, man must make his own living. He must perform some part, large or small, in the process by which he becomes possessed of the necessary goods. Now, as making possible the accomplishment of this task, he finds at his disposal two sets of conditions, or instrumentalities: (1) his own outfit of capacities, mental and physical, and (2) an outside world of material objects and conditions which in one way or another can be drawn upon and utilized. Starting with this general situation, there are several possible ways in which his task of making a living might be accomplished.

**Different Possible Economic Orders.**—First, an economic order can at least be conceived in which the goods needed by the individual are made available by his own efforts, unaided by his fellow men. Crusoe is represented as contriving to satisfy his wants, in so far as they were satisfied at all, almost wholly by the labor of *his own hands;* and it is probable that many hunters and explorers for a time approximate his condition. A pioneer or isolated settler also to a great extent produces the very things which he consumes and consumes nothing but what he himself produces—bakes his own bread and eats it, grinds his own flour and bakes it into bread, raises his own wheat and grinds it into flour. Such an order, where each man provides directly and entirely for the satisfaction of his own wants, may be called an *autonomous economic order.*

At the opposite pole, we have an economic order in which all the people of a community cooperate *in a completely organized way* in the getting of economic goods. The community owns all the resources, undertakes all production, and sees that each person gets what he needs or, anyhow, what the community can afford to let him have. Such an economic order is commonly designated *Communism.*

A somewhat less completely organized system of cooperation would leave to individuals greater freedom of action, in that, while the community owned all goods used in production and undertook all production, the individual would be hired by the community and paid wages, and would be permitted to buy and own such *consumption* goods as he chose, instead of being taken care of like the members of a family. A system of this general character is usually called by economists *Socialism* or *Collectivism.*

The two possible economic systems last described are both cooperative, as must be all but the one first described—the autonomous one. But neither of these, as the student is doubtless aware, is anywhere fully established, though experiments in this direction are being made on a gigantic scale in various countries. In contrast, the actual system of most civilized countries is one in which the cooperation involved, instead of being organized, conscious, is rather *spontaneous, automatic—effected and regulated through free exchange* between individuals or non-political groups. This system we shall call one of *Individual Exchange-Cooperation.*

**The Present Order Cooperative.**—But we need to make some more specific comments on this order. First, we must emphasize the general point that the system *is cooperative*. This is necessary for the reason that not a few people are accustomed to think of this order as emphatically *not* cooperative. In fact they very often urge the adoption in its place of some system which *is* cooperative. Now, of course, it is perfectly legitimate to understand cooperation in senses which would not be suitable in describing the present order. For example, there is a special system of acting together among the consumers of certain types of commodities whereby they themselves undertake the business through which these commodities are obtained. Thus we sometimes have cooperative bookstores in college towns. In England there are many cooperative shops for groceries, meat, and other household supplies. Again, we have a few cases of producers' cooperation, wherein the laborers in a business undertake to run that business. Other uses of the term could doubtless be found.[1] So, of course, the communism or socialism described above would be cooperative in a sense that the present order is not. Nevertheless, it is unquestionably true and of the greatest importance that the present order is cooperative. For it contains the essential feature of cooperation. The members of society *act together* in supplying their wants. Each person produces almost entirely for other people's consumption; each person consumes almost entirely what other people have produced.

**Spontaneous Exchange-Cooperation.**—We have seen that the present economic order is essentially cooperative. A second special characteristic of that order is found in the *peculiar way in which our cooperation is brought about*. Ordinarily, in speaking of cooperation, we think of it as being *conscious, organized* cooperation, brought about either by agreement or authority. Thus, people cooperate in getting up a church supper or picnic, through agreement. On the

[1] It perhaps ought to be added that people every now and then use the word cooperation for a species of acting together, which most economists condemn, that is, the acting together of persons engaged in the *same* business. "We are hurting ourselves by this heartless competition," say the grocers; "let us cooperate,—treat each other as brothers,—live and let live." Very nice for the grocers, but hard on the rest of us.

other hand, in the family we have cooperation brought about by the authority of one or both the parents, and in communistic societies—Shakers, Oneida, Amana,—many of which have existed in the United States, we have cooperation effected by the authority of the community. In contrast with such conscious, organized forms, the cooperation of the present order *results from the spontaneous action of individuals in producing goods wanted by other persons, and exchanging those goods for goods which the others have produced.* That is, the element which effects our cooperation under the present order is *Exchange.* This second feature of the order is brought out by denominating that order one of *Exchange-Cooperation.*

**Cooperation Regulated through Exchange.**—A third characteristic of the present order, and one which furnishes an additional reason for denominating it an order of Exchange-Cooperation, is found in *the way our cooperation is regulated.* It is pretty clear that, if we have any cooperation at all, there must be some way of *regulating* that cooperation. We need more of some things than of others. We need certain things so much that it will pay us to have them even at the cost of going without some other things altogether. Unless there is some guiding, directing machinery, we shall be wasting our resources producing the wrong things or the right things in the wrong proportions. Now, in some kinds of cooperation this regulating is done, or would be done, by *authority.* This is the case within the family. How much time the farmer's boy shall put in weeding the garden, how much splitting wood, and how much picking up stones, the farmer determines by authority; and such a system prevails in the main in the communistic societies to which reference has already been made. But, throughout most of the present order, our cooperation is *regulated* by the same machinery of exchange which *effects* that cooperation, and in the same spontaneous way. If too little of anything is produced, price rises or the market expands, profits increase, and so producers of their own motion increase output; if, on the other hand, too much of anything is produced, price falls or the market contracts, profits diminish, and so producers of their own motion diminish output. Again, if the output of some commodity during a particular year is exceptionally small, so that

consumption all along the line needs to be curtailed, this is usually accomplished, not by the interposition of the public authorities, but by an automatic rising of price which induces almost every one to cut down consumption of his own motion. So, in these and various other ways, exchange regulates our cooperation.

**Individual Initiative.**—We have seen that the present economic order is one wherein men cooperate and wherein their cooperation is effected and regulated through exchange. The fourth and last dominant feature of the order is *individual initiative*. It is quite possible to conceive a system of cooperation which, in part at least, is effected and regulated through exchange, but in which *initiative is left to society as a whole, government*. Thus, under socialism as it is commonly advocated, the state would be the sole farmer, miner, manufacturer, or merchant,—the state alone would *undertake* to produce things, putting all individuals into the position of employees. But it would still enter into exchange relations with these individuals, buying their services in the open market and selling them its products. Further, it very probably would depend on freely determined prices to guide or regulate production in the same way that they do at present. But while such a system would, like the present, be a system of exchange cooperation, it would differ radically in *leaving all initiative to the state;* whereas, in the present order, initiative is mostly, though not entirely, *the business of the individual*, —persons who have the means and think they see a chance to obtain profits set about producing wheat or iron or chairs or what not. Accordingly, to give something like a complete characterization of the present order in its most general features, we have to say that it is a system of *Individual Exchange-Cooperation.*

One point in the foregoing description should perhaps receive special emphasis before we pass on. Our affirmation that the existing order is regulated through exchange may awaken surprise or doubt in some who were unaware that the order is regulated *at all*. Many people have never recognized in exchange the possibilities of a regulating factor; they have assumed that the only such factor that could exist is some kind of *conscious* interference; and, knowing

that there is little such interference in our order, they pass to the natural conclusion that our order is almost, if not entirely, *unregulated*. Indeed, there is nothing more common, even among educated people, than the notion that, save for a slight authoritative interference here and there, the present order is quite without regulation, and therefore exists in a state of chaos or anarchy, governed only by chance. Now, this is surely quite contrary to the facts. Economic actions are *regulated actions*. They are organized and correlated so as to accomplish uniform and regular results. The fact that the regulation is spontaneous, and hence to some extent concealed, does not make it any the less real. It would be impossible, or at any rate inexpedient, to attempt in this place a fuller description of the process by which the regulating actually takes place. But the more specific and detailed argument for it will be supplied as our knowledge of the economic order expands in the progress of this course.

In saying that the economic order is regulated, we do not intend of course to intimate that it is regulated in a manner altogether just and expedient. The time has not come to go into this topic at all fully; but even at this stage so much should be made clear. No one claims that the present system works perfectly, that there are no evils which society ought to try to eliminate. There surely are not a few places where spontaneous regulation fails to attain good results, and it surely is possible that at these points some other form of regulation would do better. *But even so, we must still insist that the present order is not chaotic, that it is a regulated and a rationally regulated order, though one in which the process of regulation is automatic.*

## Illustrative Problems

1. Give some examples of autonomous production from everyday experience.

2. "Robinson Crusoe, on his far-away island, had neither trade nor commerce. Except for the supplies that he recovered from the wreck of the ship, he obtained his food from the plants that he cultivated and from the wild animals that he killed. His clothing was made from the skins of goats; his table and his chairs were the work of his own hands.

Even his shelter was constructed of the stone and wood that he found on the island. If he had more of one product than he needed he could not exchange it for other necessary articles. If provisions, utensils, clothing, tools, or metals were lacking, he could not buy them. He was by turns hunter, fisher, tanner, farmer, miller, baker, blacksmith, and carpenter."

The above is the opening paragraph of a book on Commercial Geography. It seems intended to suggest the significance and importance of commerce by setting forth the disadvantages of isolation such as Crusoe's. What was the real nature of the drawback in his situation which it brings out?

3. "In the main, industry is organized in a spontaneous way. Men choose such occupations as they like, and when there are too many of them in one group and too few in another, the automatic working of economic forces moves them from the former to the latter." Explain and illustrate the last clause of that sentence.

4. "The great advantage of foreign trade is in furnishing a market for our surplus products which would otherwise go to waste." This surely is only a minor advantage of foreign trade. Why? Give something better.

5. If the potato crop of a communistic society which had no commerce with other communities were to fall off one-half, how would they regulate the consumption of potatoes for the following year? How is it done under the present order?

6. "It will never pay us to import anything which we ourselves can produce." Show that this proposition is erroneous.

7. "If the results which follow from allowing prices to be determined under the free working of economic forces do not satisfy us, we should try to improve those results by the adoption of *subsequent* measures,—we should if possible avoid all *direct* interference with the free determination of prices.

Defend that statement.

8. Suppose that a wave of sentiment in favor of higher wages for workmen in one particular industry, say railway transportation, passes over the country, and as a result these wages are actually pushed much above what they would tend to be under the natural working of things. Argue that such a policy would be inexpedient.

## II

### Forms and Forces of Individual Exchange Cooperation

**Specialization.**—To a very limited extent, our cooperation in the present order is *homogeneous;* we combine to do something which requires that all shall act in the same general way, as when a number of men carry a steel rail. But, generally speaking, our cooperation is *heterogeneous.* Each person does a different thing from the rest, though the actions of all may be combined and ordered to a common end. But this differentiating the tasks involved in the cooperative process and assigning them to different persons is not something merely occasional or extemporized. The particular task undertaken by each is *habitually undertaken by him;* he regularly performs this task and no other. Now, such a practice is known as *division of labor* or *specialization.* And this specialization, as one of the most important features of our cooperation, should be examined somewhat more specifically.

One form of specialization is that wherein each producer is entirely responsible for a complete product. Thus the farmer plants his potatoes, hoes them while they are growing, and finally digs and sorts them into bags, ready for the consumption of his several neighbors; while one of those neighbors, the carpenter, might draw the plans for a house, procure the lumber therefor, and finish the structure complete, ready for the farmer's occupancy.

But, as every one knows, specialization commonly goes much further than this. Practically no one in a highly organized society carries from beginning to end the processes necessary to the production of a finished consumption good. The work of the baker in producing bread is preceded by that of the miller in producing flour and that of the miller in turn by the work of the farmer in producing wheat. So likewise the work of the shoemaker is preceded by that of the tanner, and the work of the tanner by that of the stock-raiser. Each commodity, in short, comes to its ultimate consumer as a result of efforts spent upon it by a long series of different producers. In addition, the various members in the original series make use of the products and services of producers in various other series. Thus

the cattle-raiser avails himself of the wagons, harness and wire fences produced by certain manufacturers. The tanner, again, uses coal, bark, and cloth, and the shoemaker uses thread, bristles, needles, and machinery, each of which has been brought to perfection by as many and various independent series of producers.

**Internal Specialization.**—But in an economic society so highly developed as ours, cooperation of the heterogeneous or specialization type goes still further. In the case last mentioned we were thinking of industrial units which, though devoted each to producing only a single element in the ultimate product, were yet *undivided* units. It was the stock farm as a whole which we conceived of as raising cattle and the tannery as a whole which we conceived of as preparing hides for leather. But in reality each such industrial unit is divided: there is specialization *within* it. In the tannery which as a whole produces leather, some men attend to the scraping of hides, some to the curing of the hides in the various baths, some to staining, some to finishing, some to keeping books, some to writing letters.

**Specialization in All Factors.**—A point with respect to specialization which is much too important to be neglected may naturally be presented in this connection. Specialization is not limited, as may seem to have been implied in the preceding discussion, to human beings. For human beings necessarily use lands, machinery, and tools in their work; and *these assisting factors become specialized* just as do the men themselves. Each tool and machine is more and more confined to the performance of one small job; one portion of land is devoted to celery, another to onions, another to citrous fruits, and so on.

**Functional Specialization.**—But we have not yet brought out the full extent of specialization under the present order. The specialization thus far considered grows more especially out of the differences in the physical or technical operations to be performed in getting a product ready for consumption. But there is an even deeper kind of specialization. In speaking of it we shall be anticipating somewhat the contents of a later chapter, but the broad facts

can after all be very easily understood. We already had occasion in the last paragraph to mention the fact that when a man engages in productive operations he does not work alone, but brings to the aid of his labor various factors outside himself, land and materials, tools, machinery, etc Now, with the development of industrial society under a system of exchange cooperation, it has come about that the *labor* for productive operations is furnished by *one* person or class of persons, the *land* by *another,* much of the *capital* invested in tools, machinery, etc., by *another,* and the *initiative* in, or *responsibility* for, production by still a *fourth.* The people furnishing these different necessary factors may therefore be said to specialize. Here, manifestly, we have a deeper sort of specialization than anything yet considered. For lack of a better term I will designate it *functional specialization.*

To summarize this discussion: the present economic system presents itself to us as one wherein we have a vast complex of different industries—mining, stock-raising, farming, manufacturing, transporting, etc.—each concerned in the production of some commodity at one or another stage of completion; that, within each of these industries, different functional groups of productive agents are cooperating, and that, finally, *this vast industrial complex is brought together, is held together, and is regulated through exchange*—buying and selling. The existing system is thus seen to be one of extraordinary complexity, very confusing to the general public and not a little so to the trained thinker. It is often difficult to isolate the precise function performed by a given business, and people who form hasty conclusions are apt to deny the existence of such a function, to affirm that the business in question plays no legitimate part, so that those who pursue it are mere parasites upon society. We shall do well, however, to assume at the outset that every occupation not catering to human vice plays a real and legitimate role in the total conduct of economic affairs, is doing some one of the numberless things necessary to be done if the wants of mankind are to be satisfied in the fullest possible measure.

**Competition.**—We have remarked on some important phases of the specialization which forms so vital an element in the present

economic order. We must now comment on another very important element in this order, an element which is often thought of as the most characteristic feature of the system. That element is *Competition.*

**Dangers Incident to Cooperation.**—To begin with, let us remind ourselves once more that the present economic order is a cooperative one. Most of the goods we produce are destined to satisfy the wants of other people; and most of the goods destined for the gratification of our wants are produced by other people. But, now, very little reflection is needed to convince any person that, when people cooperate, whether in an economic order like the present one or in an order like communism or socialism, there will always be a temptation assailing each one *to give* to the joint output as *little* as possible and *to take* from that joint output as *much* as possible. Just because I am producing things for people other than myself, I might easily be tempted to put poor materials into my product, to avoid working very hard or very carefully on that material, to try to get from my customers prices for my product higher than their real value, and so on. In fact, as we all know, this is in some measure true of the present system as it really works.

**Methods of Meeting Those Dangers.**—But it is hardly necessary to say that society has always recognized this danger and the need for some plan or device for meeting it. In a society where voluntary communism has been maintained, the influence of a sense of religious duty has usually been depended upon, though without great success, to accomplish the result. Under socialism and state communism, public authority would probably be used to meet this need, as would seem to be the case in Russia at the present time. But, under an order of free private initiative, such as ours, the force commonly depended upon is *free competition,*—that is, the unhindered effort of each producer to get or keep patronage which might go to rivals.

**Presumptive Efficiency of Competition.**—The *a priori* grounds on which we might expect free competition to guard us pretty well

against the dangers incident to all economic cooperation are easily set forth. If, as a producer, I had no need to think of anyone but my customers, the temptation to gain at their expense which has been noted might generally prove too strong. But there are other people whom I have to consider, namely, my *rivals,* other persons producing in the same line as myself. The fear that such persons will get my customers to buy from them instead of from me, says to me in very emphatic tones: Do nothing to the disadvantage of your customers; don't put in poor materials or work; don't take advantage of their ignorance; don't try to deceive them; and so on. Put positively, that fear of rivals says: Do everything possible to the advantage of customers; be eager to anticipate their wants; put in better and better materials; improve the quality of your work; show yourself really interested in doing the best you can by them; and so on. Manifestly, we have here a force which tends strongly to offset the dangerous tendencies naturally present in all cooperation.

**Enforced Freedom of Competition.**—That free competition must be recognized as a vital, fundamental necessity of the present order is surely evident from the considerations set forth in the last two paragraphs. Conceivably it might be better to do away with our present system altogether, to substitute therefor a system of *organized* cooperation like socialism, in which case we should have to depend largely on some other method of avoiding the dangers which grow out of cooperation. But, so long as we attempt to maintain the present system of spontaneous cooperation, we should in every way strive to maintain freedom of competition. And, in fact, this is the almost universal policy of governments at the present time. The only exceptions are those cases where experience has shown that free competition cannot be maintained or its maintenance will on the whole work more evil than good. With these, government control or government regulation is substituted for freedom of competition. But these cases are decidedly the exception. The general rule is *enforced freedom of competition.* Even when governments undertake direct control or regulation, they usually set up as the *ideal* of their regulation the results which it is conceived would follow were competition perfectly free.

**Competition Versus Cooperation of Like Units.**—The importance of free competition in the present system makes it almost necessary to comment on a certain matter-of-course condemnation of such competition which has very wide vogue. Certain types of men talk and write with much eloquence about the wicked and unchristian character of competition, and roundly affirm that cooperation would be so much better, so much more human and christian, meaning by cooperation this time, cooperation among *like* units, like producers. If such cooperation is being carried out by very wealthy men in great corporations like the Standard Oil Company, the enthusiasts for cooperation talk in a different vein. In fact, they are quite likely to indulge in disagreeable epithets such as "grinding monopoly," "the robber barons of our day," and so on. But cooperation which is limited to their own particular group and so is likely to serve their selfish ends, or cooperation which applies to some class with which they have special sympathy, they defend in warmest language. Whether there is any possible justification of such an attitude, I will not here attempt to say. One thing, however, is certain. Any notion that free competition is *per se* wrong, that cooperation, in the sense here considered, is inherently the only righteous policy,—any such notion is thoroughly unsound. In fact, the truth is precisely contrary. *Only free competition is right;* cooperation is, *prima facie,* wicked. *Cooperation, in the sense indicated, is only a pleasant name for combining to take advantage of your customers, or the dealers of whom you are customers.*

**Competition as a Regulative Instrumentality.**—We have seen the importance of free competition as the instrumentality depended upon to hinder the selfishness of the individual from interfering seriously with the working of the present order in respect to fairness and efficiency. Attention ought also to be called to the part played by competition as a *regulative* instrumentality. Every person who engages in production hopes, of course, to dispose of his own goods and obtain other goods in spite of the presence of his competitors. But, in order to exchange at all, one must accept as low prices and pay as high prices as his competitors. Now for the individual this necessity may prove to be extremely trying. It often costs one man more to

turn out his products than it costs his competitors, and so if he sells as low as they, he may get out of the exchanging process less than he puts into it. And if he continues long doing business on any such principle, he will of course come to ruin.

Now the real difficulty with any individual in this situation is that he has not been able to produce the particular commodity which he brings to exchange as efficiently or as cheaply as his competitors. To save himself, therefore, he will be forced to quit that field of production and go out seeking among other fields for one in which the advantage does not lie so much with his competitors. Only those with independent incomes can choose and indefinitely persist in an occupation which does not produce something they can sell to advantage. In other words, the result of competition, of competitive exchange, is to force each person into that field of productive employment for which he is best fitted. Thus competition is an essential feature of the present order, not only because it is necessary to insure fairness and efficiency in the economic conduct of the persons who cooperate in that order, but also because it tends to put each of us in the right place, to set us at the right task.

**Summary.**—Summarizing this account of the general nature of the present economic order, we say that it is cooperative; that its cooperation is effected and regulated through exchange; that its cooperation is mainly heterogeneous and so involves specialization; that of this specialization there appear different types: specialization *between* industries, specialization *within* industries, and *functional* specialization; and that the whole process is carried out under the condition of free initiative and free competition.

## Illustrative Problems

1. Is it consistent with the general character of the present economic order that all the orange growers of the country should combine for the marketing of that product? That all grain raisers should combine in the purchase of binding twine?

2. Is it consistent with the general character of the present order that all the locomotive engineers of the country should combine in selling

the services of some of their number to the Michigan Central Railway? Would it be any more consistent with the present system if this combination sold the services of all their number to all the railroads acting as a unit? Would the second plan seem to you any fairer?

3. Two ladies discussing the high level of prices in the winter of 1920 agree in holding this doctrine: "During the last few years producers have learned that they can make more money by keeping down the output and so raising prices. Hence we can be quite sure that in the future they will pursue this policy: from now on we shall commonly have a shortage of wheat and fruit and other farm products." Criticize that conclusion.

4. We hear a great deal of complaint in these days to the effect that dealers, middlemen, are getting outrageous profits. Doubtless there is always a possibility that the unexpected will happen; but, provided competition is kept free, the presumption is always against the truth of such an accusation as the above. Defend the last statement.

## III

## Some Economic Principles Deducible from the General Nature of the Present Order

**Prevalence of Economic Fallacies.**—A notable fact in this age of general education and enlightenment is the continued acceptance by a great majority of persons of quite erroneous notions with respect to several familiar and not very difficult economic questions. One can hardly run through a current newspaper or popular magazine without coming upon fallacies which, as the economist looks at it, were fully disposed of by Adam Smith almost a century and a half ago. This prevalence of unsound doctrine is particularly troublesome and dangerous in a country like the United States, because the majority of the people have the power to affect the policy of the government in economic matters, and frequently use that power. Accordingly one of the greatest tasks of the student of Economics is to train himself in the art of detecting the fallacies which lurk in popular beliefs. This task confronts us, too, at the very outset of our course; for some of the most wide-spread fallacies are concerned with facts already brought out in the foregoing general account of the present economic

order. We will, therefore, at once set about formulating principles and applying them to popular errors.

**All Profit from the Efficiency of Each.**—The first generalization from the nature of the present order which we have to lay down is that, generally speaking, *each person gains from the increased efficiency of his neighbors.* In one way this would seem to follow as an evident corollary from the proposition already set forth, that our economic order is *cooperative.* As long as we cooperate in production, the efficiency of the persons producing all the different commodities will increase; this will swell the total product of the group and so may naturally be expected to bring advantage to all members of the group, those concerned with one commodity as well as those concerned with another. Thus, when the farmer, carpenter, and mechanic cooperate—in the sense that each specializes in his own craft and exchanges his product for those of the others—they every one obtain better goods and more goods and goods of a greater variety than they otherwise would. But in real life there is a more difficult problem. Suppose that, after cooperation is established, the farmer and the carpenter come to a standstill in the development of their craft, while the mechanic proceeds to acquire an extreme efficiency. It might be argued that, although the aggregate product of the group will surely be increased, this will not necessarily be of any advantage to the other members of the group, because the increase may all go to the person whose efficiency has risen, the mechanic alone.

**The Proof.**—The full answer to this objection depends on a knowledge of the principles of price or value which we do not take up till later in our study. Still, it will not be difficult to anticipate that discussion sufficiently to satisfy the student's mind in regard to the general point. (1) If the mechanics learn to make twenty cars a year instead of ten, while farmers and carpenters continue to produce at the same rate as before, then *under free competition* the exchanging rate between autos on the one hand and corn and houses on the other will alter in favor of the latter. For auto-makers, in competition, will offer more and more of their increased supply of cars against a supply of corn and houses that has not increased at all.

Accordingly, a certain quantity of corn and houses will buy more automobiles than before. (2) Since by hypothesis no change has taken place among the farmers and carpenters, the exchanging rate between their goods, corn and houses, will not have altered: a certain quantity of one will buy the same quantity of the other as before. (3) Consequently, the farmer or carpenter will find himself able to buy with his own product more automobiles, while buying no less houses or corn. In other words, he will have gained from the increased efficiency of another producer.

It must not be imagined, of course, that *the producer whose efficiency increases* derives no advantage from that increase. A man who suddenly runs far ahead of his fellows in efficiency may, before competition can overtake him, reap enormous gains; and the use of secret processes, and the protection of patents may for a brief time prolong this advantage. Besides, even when competition is operating freely, the efficient producer will commonly gain. Each unit of his commodity buys less than before; but he has more units to buy with, and usually this brings to him an increased total of other goods. The point to be emphasized here, however, is that, although the person or the class that shows increased efficiency may gain something by it, the public also does not fail to gain. The benefits of an improvement do not accrue permanently to the producer alone; they are diffused, they go to the public—and, broadly speaking, to every member of the public.

Formulating the point brought out in the foregoing discussion, we have the following:

> **Principle.** *The present order being a cooperative one, each person or community tends to gain from an increase in the economic efficiency of other persons or communities with whom or with which said person or community maintains economic relations.*

**Real Functions of Trade.**—A second matter on which we need thus early to lay down a formal principle is *the function of trade, exchange.* There is indeed almost no other phase of Economics on

which popular opinions go so widely astray. In the minds of a few persons, all trade whatever is *illegitimate;* to a much larger number this is true of at least some kinds of trade; and a majority of persons, probably, believe that trade, if legitimate at all, is surely in any proper sense of the word, *unproductive.* But if the account given in this chapter of the general features of the economic order is sound, all these adverse judgments are of course quite untenable. Trade in general, and presumably all kinds of trade, are legitimate because they play a vital, necessary role in economic affairs. Exchange is, as we have seen before, of the very essence of our heterogeneous cooperation—it both effects and regulates that cooperation—and the one without the other is unthinkable. The fact may, therefore, be formulated in the following:

> **Principle.** *Under the existing economic system, exchange (trade, commerce) plays an essential part in that it makes possible economic cooperation and specialization—it supplies the process, or system of processes, whereby cooperation is effected and regulated.*

Furthermore, if we understand by the word "productive" that the operation so characterized fulfils a condition essential to the satisfying of our wants, then trade in some form, certainly, is productive.

This proposition so plainly follows from the principle that it needs no further proof. It gives us two corollaries. The first concerns the function of exchange as *effecting our cooperation* and may be stated as follows:

> **Corollary 1.** *Exchange operations, viewed as processes necessary to consummating our economic cooperation, are productive operations, and people engaged in such operations are producers.*

The second corollary, though it follows quite as directly from the principle, may require some little comment. It concerns the fact that exchange is *the regulator of our cooperation.* Many persons who admit that mercantile operations are productive in so far as

they are devoted to buying from producers and selling to consumers, would yet be disposed to deny the productivity of these operations in so far as their function is the determining of prices. But the error of such a denial can readily be seen. As the principle tells us, exchange is responsible for the proper regulation of our economic activities, and this part of its task is largely performed through the *changing of price*. It follows, then, that exchange operations, viewed merely as *price-determining* operations, are essential parts of the total productive process, hence, are productive operations.

**Corollary 2.** *Exchange operations, viewed as processes whereby our cooperation is regulated through price, are productive operations and persons engaged in such operations are producers.*

## Illustrative Problems

1. "Give the farmer a parcels post to begin with. Let him send his dozen eggs or his pair of chickens direct to the man who wants to eat them, or at least to the retail merchant. Cut out the commission merchant, the wholesaler, and a few other of the city parasites that live on the farmer."—*New York Evening Journal.*

(a) Suppose yourself to be a farmer living in the neighborhood of Ann Arbor, and point out some advantages you would derive from selling your butter to the grocers and your chickens to the meat men rather than to consumers.

(b) Suppose yourself to be a fruit grower in Western Michigan, dependent for your market chiefly on Chicago, and point out some disadvantages which you would suffer if you tried to sell grapes, peaches, etc., by parcels post to the ultimate consumers in Chicago and its vicinity, rather than to commission merchants.

(c) Show that these facts are inconsistent with the notion that commission merchants, wholesalers, *et al.*, are "city parasites."

Note: There is of course much to be said in favor of a parcels post; and it is always possible that the number of middlemen should become needlessly large so that some of them may fairly be viewed as parasites. But such a characterization of the class as a whole is quite illegitimate.

2. "Internal commerce does not increase the wealth of a nation since it only transfers goods from one person to another." Criticize.

3. At various times there has been much talk about the "right price" for some commodity. On the basis of the account of the present order given in this chapter, what would be a natural definition of "right price"?

4. In the natural course of events it often happens that a country loses some portion or the whole of its market in some particular country. When this happens or is anticipated, public men are apt to speak as if such a result involved almost irremediable disaster. Doubtless it would mean some loss, but by no means the amount which people seem to imagine. Explain precisely what would be the nature of the injury to us, if our foreign trade should fall off by a considerable amount. Supposing our foreign market showed a permanent net shrinkage of 200 millions of dollars per annum, would this mean that our yearly income would be 200 millions smaller? If not, just what would it mean?

5. From the Congressional Record for May 17, 1909: "Mr. Aldrich. Assuming that the price fixed by the reports is the correct one, if it costs 10 cents to produce a razor in Germany and 20 cents in the United States, it will require 100 per cent duty to equalize the conditions in the two countries. . . . And, so far as I am concerned, I shall have no hesitancy in voting for a duty which will equalize the conditions. . . .

"If it was necessary to equalize the conditions, . . . I would vote for 300 per cent as cheerfully as I would for 50."

To what sort of an economic system would such notions, if logically carried out, inevitably lead?

6. "A first-class illustration of the absurdity and wrong of the present order is furnished by the case of a plumbing firm. Such a firm does little, if anything, more than act as a middleman between the actual plumbers and householders. But it pays the former at the rate of, say, 30 cents an hour for their services, while it charges householders 60 cents an hour for those services. Here you have a plain case. Either the firm underpays the laborers or overcharges the householders; and in either case it gets something which it has no right to. There is no other alternative." Discuss the above.

7. "If the wheat crop of the world should fall off one-half next year, a rise in price would then be of great social advantage." Explain.

8. The general account of the existing economic order which has been given in the present chapter furnishes one of the most fundamental objections to the maintenance of a protective tariff, i.e., a tariff intended to hinder our buying goods from other countries. Explain that objection.

# CHAPTER III

## AUTHORITATIVE CONTROL IN THE EXISTING ECONOMIC ORDER

We have thus far described the present economic order as built up and regulated by the free, spontaneous action of men. This description is, in the main, correct; and it emphasizes the fact which we should first of all fix clearly in mind. There is an economic order of a perfectly definite sort, organized in a highly intricate way, and, in spite of its apparent surface contradictions, tending to supply man's wants with an efficiency truly marvelous to those who have never before reflected upon the fact; and this order, in its most essential features, *owes its existence and its regulation to the free action of men pursuing their own personal economic interests.*

**Not Purely Spontaneous.**—In saying this, however, we by no means present a complete and accurate picture of the existing order. There never was, and is not now, an economic order *purely* spontaneous. The spontaneous action of men in their economic relations has always been more or less influenced, either in the way of help or hindrance, by authoritative forces outside the men themselves. Sometimes mere public opinion or a general social custom has made itself felt. Sometimes a powerful religious organization has said that men should do thus and so, and has compelled them to do it. But the strongest of all authoritative forces outside the individual, especially in the present age, is the action of organized government. To this aspect of the existing order, we must give something more than passing attention. First, then, we comment briefly on some governmental activities which may be looked on as logically essential to the realization of the principle dominant in the present order. Later we will remark on several kinds of governmental activities which are more or less inconsistent with the central principle of our order, but which are, after all, by many or most authorities thought desirable.

## I

### Activities Essential to the Realization of the Central Principle of the Present Order

**Free Initiative.**—One type of governmental activity vitally essential to the present order insures the possession by a considerable number of persons of the right of *free initiative*. This proposition is immediately deducible from the fundamental character of the present order. That order, we remember, depends on the *initiative*, the spontaneous action, of *the individual* to see that the right things and the right quantities of things are produced; and, at the same time, it expects individuals to exercise this function under conditions of *competition*. Naturally, then, it will be necessary for people generally to possess the right of initiative. Further, since this right might easily be hampered by the voluntary action of other individuals, it is necessary that the state should make special provision to insure its maintenance. The government must, for example, do its utmost to eliminate what is known as *monopoly*,—the *control by one will* of economic activity, especially the production or sale of any kind of goods.

**Right of Property.**—Again, governmental action is vitally needed to insure that individuals shall have the power to get *control of the instruments of industry*, the raw materials, tools, machines, etc., including the services of those human beings who assist in the productive process; for, obviously, production cannot be initiated and carried forward by the spontaneous action of individuals, unless they have this power. Our present economic order, in some of its variations, has allowed full property in *all* these factors to the private individual. At times it has permitted him to own land, materials, tools, and even the human beings who give off productive services. In the present age, as we know, property in human beings is almost universally forbidden; but in the other instruments of production it is almost as universally recognized. This private ownership is not strictly a necessity. The state might own the instruments while the men who initiate and maintain production merely buy from it the

services of those instruments; and yet the fundamental principle of our order would be successfully carried out. In any case, however, it would be necessary that individuals should have the power named,—the power to control and dispose of these services—else they certainly could not initiate and guide economic activities.

But not only does the present system require that individuals shall have the right to control instruments of production, it is possible that the right will be *infringed* by the action of other individuals. Superior force or guile may greatly impair the efficiency of the system approved by the public will. It follows that governmental action is needed to *insure the possession by the individual of these necessary property rights.* Whatever degree of control over the instruments of production we purpose to grant to the individual, that control we must insure to him by governmental action. Similarly, the government should, of course, insure that the man responsible for the production of economic goods shall be secure in his right to the ownership of *those goods after he has produced them.* For other persons might be disposed and able to deprive him of the fruits of his efforts, thus destroying the motive for industry; and this possibility can be shut out only by the action of the government.

**Right of Contract.**—Another type of governmental action essential to the conduct of the present order is the authorization and maintenance of *contracts.* Individuals must be permitted to make agreements with one another in respect to their economic conduct, and the government must provide for the enforcement of these agreements. This necessity grows out of two facts: (1) Many economic operations require extended periods of time, and (2) in many cases the carrying out of the time-consuming process requires a dependable anticipation of future needs. If a man is building a house, he will need material and labor at various times during a considerable period in the future; and, for obtaining these, he cannot safely trust to the chance of the moment. To secure something like certainty, he makes contracts in advance. Again, as we all know, one of the chief factors in production, capital, is largely obtained by borrowing from others. And this involves a contract, in that the borrower must agree to return the sum borrowed and pay interest for its use.

But, if it is practically necessary to have a right of contract in carrying out the principle of the existing order, it is also necessary at this point to have some action of the government; for, without governmental interference, the right of contract could not be effectively maintained. Circumstances would always be arising in which it was for the interest of one or the other of the parties to break the contract; and all experience shows that the temptation is too powerful for human nature unless restrained by the strong hand of the law. Our economic system, therefore, requires that the government shall *authorize and enforce contracts.*

**Free Exchange.**—Again, it is plain that governmental authority is needed to insure the right of *free exchange.* As we saw in the preceding chapter, one of the most central features of the present order is a type of cooperation effected and regulated through exchange. The existence of a general freedom of exchange is, therefore, an absolute *sine qua non.* But this freedom is always liable to be infringed by the selfish action of other individuals. Dealers themselves are eager to eliminate competition and often try to do so by agreements of a monopolistic character. The necessary freedom of exchange, then, can be insured only by the potent interference of government. The state may conclude that for reasons of a public nature it is, on the whole, undesirable to maintain perfect freedom in every field; but it should insure such freedom for *economic action in general,* and it should see that *no interference* with that freedom is permitted *except what it authorizes.*

### Illustrative Problem

Weak, tyrannical, or corrupt governments are each unfavorable to high economic efficiency. Why?

## II

## Activities Designed to Increase Economic Efficiency

We come now to several forms of governmental activity which cannot be described as logically essential in carrying out the fundamental principle of the present order. They usually involve *limitations upon* that principle. They have often been opposed by rigid

supporters of the present order, but, in the course of the last century, have notably increased in all fields. Here we note, first those activities which attempt to improve the present order by *supplementing individual action with more efficient governmental action.* Not a few of this sort have been carried on by government in all ages, so that they are looked on by almost every one as belonging essentially to the governmental sphere, for example, the issue of the money which acts as a medium of exchange, the building of roads, or the making of canals.

Another type of activity contributing to the efficiency of production which has greatly increased in our day, is the conduct of *investigation* into the conditions and methods of procedure necessary to highest technical efficiency. Thus public bureaus are maintained to carry on *research* in biological subjects, like the breeding and care of animals, the improvement of seed, the discovery of better conditions for growth, etc. An activity closely allied to this last is the *dissemination of information* among those engaged in an industry, most conspicuously those engaged in agriculture. Still another consists in providing for technical education and training through schools of agriculture, mining, manufacture, and commerce.

## III

## Activities Designed to Alter the Distribution of Property and Income

It has always been recognized that the present system needs to be supplemented by governmental action not only to increase its efficiency, but also to prevent *undesirable consequences* which the free working of the system would inevitably produce. One such consequence is extreme *inequality* in respect to the distribution of property and income. In spite of the high efficiency of the system as a whole, many people feel that we cannot rest content until we have ameliorated the inequality resulting from it. And at this point the intervention of government is demanded.

Among the various policies used by government to improve the system of distribution, we have the guidance of *taxation* in a way to

throw the chief burden on the wealthier classes. In other fields, a particular kind of service is sold to everyone at the same price,—the rich man and the poor man pay the same for a loaf of bread or a pound of meat. But, since the fundamental services supplied by government have no price to rich or poor while the cost of maintaining government falls more heavily on the rich, the latter virtually pay a higher price for these services than do the poor. In effect, then, the system of taxation redistributes the social income in favor of the poor.

In speaking above of the attempt to relieve less wealthy people of the tax burden, we had in mind especially that volume of taxes which is *bound* to be levied because it is destined to meet the necessary expenses of government. A second method of diminishing inequality also involves the system of taxation, but in a different way. Government undertakes to improve the condition of people of small or moderate means by furnishing certain services and goods either gratuitously or at a price lower than would appear under the operation of free private initiative; and the funds needed to meet the expense for these types of activity, like the ordinary income of government, are raised by taxation, assessed according to wealth; so that the net result is a redistribution of income favorable to all but the wealthy classes.

The most familiar example of this kind of governmental interference is found in the field of *education.* Poor people lack money to give their children an education; the state undertakes to provide it for them. In respect to the simpler forms of education, this policy dates back a long way; but in our day it has been extended also to the more advanced forms. Intermediate, and even the very highest cultural courses, as also technical or vocational training, are open to all classes, if not gratuitously, at least below cost. The children of the poor, as a result, have opportunities many times greater than they could expect in an order purely spontaneous. Supposing their natural endowment adequate, they may hope to attain the highest professional positions of all sorts.[1]

[1] The student is of course aware that much of this sort of work is done by the voluntary contributions of the rich; but we are here concerned only with the activity of government.

Another line of governmental activity concerned with bettering the condition of the poorer classes and so in effect redistributing the social income, looks after *defectives*,—the maimed, the blind, the insane, the feeble-minded—either in part or in whole at public expense. The wealthy could afford to provide for this themselves, the poor could not. Again, the government often manages certain industries which furnish fundamental necessities such as water, gas, and electric current, in order to help the poor by supplying these at lower prices than would appear under private initiative. In Europe a number of municipalities have gone so far as to undertake the running of street car lines, charging fares, especially for workingmen, below the cost of the service. Still again, governments improve the condition of the less well-to-do by maintaining institutions for supplying all classes with forms of *entertainment* which would naturally be open only to the rich. This is illustrated in the maintenance of free public libraries, picture galleries, opera houses, parks, and playgrounds.

### Illustrative Problems

1. In what other way than that given on pages 41 and 42 can the governmental provision of education for the masses be justified?

2. Argue that it would be better to use the method described on page 41 for promoting the welfare of the poorer classes rather than a method which tried to alter their incomes directly, that is, by raising the rate of wages.

## IV

## Activities Designed to Secure Some Advantage of the Social Group as a Whole

In the last section we dealt with activities designed to improve the condition of the poorer classes. All such activities may be and doubtless are inspired in part by another motive, the desire to improve the condition of the group as a whole—the city, the state, the nation. For surely any group which hoped to prosper as a whole would see to it that taxes were levied with relatively less weight upon the poor, that defectives were cared for, and that education for all was pro-

vided. The foremost motive in all these activities, however, is perhaps the welfare of the classes or of the individuals who are directly aided. We come now, on the other hand, to a type of activity motivated mainly if not entirely by the desire to improve the welfare of the group as a whole; a type intended not to guard the individual, but to guard the group against the evils which might result from the unhindered working of the present system. It may be true, as has been implied in much of our earlier discussion, that for all individuals everywhere an absolutely spontaneous, automatic workings of things would be, on the whole, best. In that case a man whom we should describe as thoroughly cosmopolitan in spirit, one who is interested in all humanity, would find in such regulation the highest possible ideal. But this description applies to very few of us indeed. Oftentimes we are not interested in the welfare of individuals everywhere, nor even in our own immediate welfare, or in that of people directly dependent upon us, so much as we are interested in the success and greatness of the city, state, or nation to which we belong. Further, the welfare of an individual *is not necessarily consistent with that* of his group; there is a possible antithesis between the welfare of the individuals constituting a group and that of the group considered as a whole. Hence, if any group of men comes to believe that the free, automatic regulation of economic relations between their own group and other groups (although best for them as individuals and for all individuals everywhere) hinders the accomplishment of some good greatly important *for their own group*, they will naturally insist upon interfering with this automatic regulation, and insist on resorting to *conscious* control through the power of the state.

**National Power and Independence.**—The chief application of the idea just set forth arises in connection with the problem of *maintaining the independence and power of the nation* over against its neighbors. The efficiency of a state at this point manifestly depends on economic as well as on purely military considerations. A nation needs to be wealthy; it needs to have great capacity for the production of the instruments of war; it needs to be insured the forthcoming of the fundamental necessities of life in case it should

through the fortunes of war be cut off from its usual sources of supply. Now it is perfectly possible that the spontaneous working of economic forces should result in neglect in some of these fields. The natural resources of the nation may be chiefly agricultural; so that the unrestricted pursuit of private gain may hinder the nation from developing the manufacturing industries and so render it unprepared to supply itself with the manufactured goods needed for war. On the other hand, it may naturally be an exclusively manufacturing or commercial nation, obtaining its supplies of food from other countries. The pursuit of private gain may then fail to develop sufficiently some industry on which its very life depends.

The possibility that unrestricted private initiative may thus expose a nation to complete destruction if cut off by war from its ordinary sources of supply has led governments to put high taxes on the importation of foreign goods, thus raising their prices and so making more profitable the producing of similar goods at home. Legislation has been used, likewise, to develop important forms of manufacture; so that we find almost all nations erecting tariff barriers to shut out the products of their neighbors and stimulate the home pursuit of the same industries.

**Interests of Posterity.**—We have commented on those activities of the state which are designed to protect a group as a whole against other groups by avoiding the economic weaknesses likely to result from individual action in economic matters. Another set of injuries growing out of individual liberty is associated with the *dissipation of our primary resources in land, raw materials, etc.* Experience has shown that private self-interest cannot be trusted to conserve the stores of coal, iron ore, copper, oil, and timber which constitute, so to speak, the patrimony of the nation. It is essential, therefore, for the welfare of the nation as a whole, that government should step in with a policy of *conservation,* well planned and strictly enforced. Similar to this case, and even more important, is the conservation of the life, health, and strength of the people themselves. Unrestricted private freedom in business has meant an exploitation of the strength and capacity of working people, especially women and children, quite inconsistent with the welfare of the group as a

whole. As a consequence, there has developed through a century of agitation and legislation a great body of statutes designed to guard the productive population against the evil effects of excessive and unsuitable labor in unsanitary conditions.

**Summary.**—To sum up the contents of this chapter: Upon the economic order described in the last chapter as one of cooperation automatically effected and regulated by exchange, we find at many points the influence of conscious regulation directed by government. Certain activities of government in enforcing the right of free initiative, private property, contract, and exchange, are necessary to allow the automatic principle to work itself out in any really effective manner. The government also acts at various points in contradiction of the principle, in order to increase our economic efficiency, or to better the economic condition of certain classes or to secure the safety and welfare of the nation as a whole.

The emphasis we have put upon these modifications should not, however, lead us to overlook the fact that they are, after all, *modifications and that only.* The great essentials of the economic order at present existing are not these things but the things we described in the last chapter. *The present order is in the main one in which, through the spontaneous action of the individual pursuing his immediate self-interest, there arises cooperation of a highly advantageous sort, effected and regulated by exchange.* It is that spontaneously developed organization or, better, organism, which constitutes the real framework of our system. And it is that organism which in the further study of this course we should keep most prominently in mind.

# CHAPTER IV

## ANALYSIS OF PRODUCTION

The central fact of economics, as heretofore pointed out, and the starting point for all thinking on economic matters, is man's *wants*. These wants, as we have also seen, are supplied by things called economic goods, which take the form either of commodities or services. Now, a very little reflection will convince anyone that practically all economic goods become possessed of their capacity to satisfy wants through the action of men. Fish may grow in the sea and fur on the animal's back and trees in the forest; but, strictly speaking, these objects do not become commodities suitable for application to our wants till they have been appropriated, shaped, or otherwise worked upon by forces directly manipulated by man. The same is even more obviously true of services, for in case of something like a lecture or a song, the very substance of the thing which gives satisfaction appears not to come into existence until the lecturer or singer puts forth his effort. This process of preparing goods for the satisfaction of wants is called production. Accordingly, since our wants are so urgent and since nearly all goods are necessarily so prepared, production must be recognized as one of the most important divisions of the study of Economics.

### I

### What Is It to Produce?

To begin with, what do we mean by the term "produce"? In everyday language, the word is used in several different senses, some of which are very broad, and some quite narrow; and in the present study, we may at times allow ourselves a similar freedom. In the interests of clear exposition, however, it is best at the outset to adopt a meaning which we shall expect to have in mind when we speak, as

economists, with the strictest scientific accuracy. Such a meaning may be expressed as follows:

*To produce is to make some contribution to the satisfying of human wants, whether this be done by persons or things, providing such contribution has a value or price.*

Two parts of this definition need a little emphasis: that the contribution made must assist in satisfying human wants, and that it must have a value or price—in other words, *must have an economic character.* In the light of previous discussions we shall need few words to justify the second of these qualifications. We are studying economics, not physical science. The sort of production we are concerned with is economic, not physical, production. But economics, as such, takes account only of those things which have value or price, and accordingly our definition of economic production is restricted to acts or conditions which have a price.

**Creates Only Utilities.**—The first part of our definition will require more careful examination. Any valuable act or thing that makes a contribution to the satisfying of human wants is productive; but what does it really mean to make such a contribution? Since wants are all supplied, in the last analysis, through material goods, it must mean to be responsible in some sense or degree for the existence of material goods having the qualities essential for our satisfaction. But, to pursue the question further, how can a man be responsible for the existence of any material object of want-supplying qualities? He cannot create the ultimate substance of an object, for all matter exists and always will exist in some form without his will or sanction. His contribution must, therefore, consist merely in bringing substances or materials which already exist into such a condition that they are capable of satisfying wants. Hence, since the capacity to satisfy wants is called *Utility,* we may say that *to produce is to create utilities*—the contributing act or thing being always understood to have value.

**Kinds of Utility.**—The emphasis laid on *utility* in the above analysis makes desirable some further comments on this term. First, as the word is employed by economists it includes many different

kinds of "*fitness* to satisfy wants." Thus, we have the fitness which inheres, so to speak, in the economic object: an elementary utility, as for example in the mere *substance* of copper; and a *form* utility, illustrated when that copper has been drawn into wire and prepared for carrying an electric current. Besides this inherent fitness, we have the fitness which consists in the *relations of the economic object to men.* Thus a loaf of bread situated where it is wanted is more useful than an exactly similar one situated where it is not wanted, and accordingly the economist talks of *place* utility; ice which is preserved from the cold months when it is not wanted till the warm ones when it is wanted, assumes what we call a *time* utility; and a commodity passing from the hands of a person who has no need of it to those of one who does have such need, acquires an *ownership* utility.

Again, it should be noted that utility includes all sorts of fitness to satisfy wants, without respect to the character of the wants. Thus, the fitness of coal to warm one is utility and the fitness of bread to nourish one; but the fitness of diamonds to give one æsthetic enjoyment or even of whiskey to give vicious enjoyment is also utility—to the economist, diamonds and whiskey are just as truly useful as coal or bread. This of course does not mean that the economist holds different ideas from other people as to the relative importance of necessaries and luxuries or as to the undesirableness of using intoxicants. But in his terminology he must recognize the *common* element in diamonds, whiskey, bread and all other economic objects which fits them to satisfy human wants; and utility is the word which he has adopted for this purpose.

**Producer Does Not Create Value.**—Another point to be noted before we leave this general topic, the meaning of "produce," is that producing should not be understood to mean *creating value.* Since it is the producing of wealth that we are talking about, and since wealth has value, it might seem that, to produce, one must be responsible for the existence of value. But this is a mistake. The producer as such is not responsible for every element in wealth but only for the element of utility. His task is to do whatever needs to be done to insure that objects or conditions shall be fitted to satisfy

man's wants. Now, this must, of course, be done before the objects or conditions will have value. In doing it, therefore, the producer contributes to the process whereby value comes into existence. But he is not *wholly* responsible for the result. The existence of value requires the fulfilment of *two* conditions: (1) that the thing having value shall be useful and, therefore, wanted, and (2) that it shall, for one reason or another, be *scarce,*—limited in amount as compared with what is wanted. The productive process fulfils the first of these conditions. But, in so far as the fulfilment of the second depends on the productive process, it is the *necessity* for that process, not its carrying out, which does the work. Because we *must* produce things if they are to exist, because *our capacity to do this is limited* as compared to our wants, and probably, also, because production involves sacrifices, the amount is certain not to be adequate to the satisfying of all our wants. As a result the things produced are certain to have value. But this result the producer, per se, has not brought about. To the extent of his capacity and inclination, he has *neutralized* one of the conditions, namely, the scarcity of the product. And this is his function as a producer. His business is to give things the capacity to satisfy wants and so the capacity to call forth demand. That these things, after all, are scarce and so command a price is due to conditions not resulting from the productive act.[1] Perhaps the most convincing argument on this point is that *the producer could best contribute to the fulfilling of the scarcity condition of value by acts sharply opposed to the productive act, namely, by refraining from production or even by actually destroying goods.*

**The Utilities Must Have Value.**—Having emphasized in the preceding paragraph the point that we do not produce value, but only utilities, we must hasten to warn the student against a possible misunderstanding. The productive act as such is responsible for utilities only. Nevertheless, in the long run, every productive act which has an economic character must have a representative, an element corresponding to itself, in the value of the product. To illustrate, the raising of wheat requires land, sunshine, rain, seed, the labor of

[1] We assume, however, that those conditions are fulfilled. See page 47.

plowmen, and so on, many conditions and factors, of which factors some, like the sunshine or the rain, are not counted as economic at all, since they are outside human control or for some other reason do not have a price, while others, like labor, are economic, as clearly indicated by their having a price. And, in the case of the latter, it is quite certain that, in the long run, the price of wheat must be high enough to include an element representing the money spent for labor in producing that wheat; otherwise, plainly, the farmer could not afford to pay for such labor. Nevertheless, the fact that, in the long run, there must be in the value of the product an element corresponding to the contribution made by each factor does not justify us in describing that factor as producing that value. The factor produces its special type of utility; *the totality of economic conditions brings into existence the corresponding increment of value.*

**Impute to Each His Immediate Product.**—Another very important point to be remarked under this head is that we should attribute to each producer the particular commodity (or the particular service) for which he is *immediately responsible.* Thus, the farmer produces, not bread nor flour, but wheat. The miller produces not bread but flour. The employees of the miller produce not flour but services, which the miller combines with the services of various machines and wheat in such a way that *he* produces flour.

**Other Meanings.**—The above discussion has brought out that meaning of production which is generally looked on by present-day economists as the most useful one. But, as remarked at the outset, we occasionally use the term in other senses, especially narrower ones, and we shall probably continue to do so. Thus, it is sometimes convenient to follow the popular usage which cuts off *one class* of producers from the rest, representing them as mediators between producers and consumers. I have in mind, of course, *the exchanging class,* who occupy a unique place in the system, in that they appear at every stage in the long chain of processes leading from the first-stage producers to the ultimate consumer, mediating between each member of the technical part of the series and his next neighbor. Thus they

act as go-betweens between the stock-raisers and the tanners; between the tanners and the shoemakers; between the shoemakers and the shoe wearers. Accordingly, we often find it convenient to use expressions like this: "It is the function of the exchanging class *to correlate producers and consumers.*" That is, we sometimes use the term producers to include all sorts of contributors to the production of commodities and services *except the exchanging class.* No harm need result from this, if we remember that, in the deeper, larger sense, all who contribute in any kind or degree to the existence of utilities are producers.

As a last comment under our present head, we add a word with respect to *the scope of the economist's study of this topic,* production. For it hardly need be said that the study of production undertaken by the economist is by no means exhaustive. Much the larger part of what might seem to belong under this head is commonly relegated to technical sciences or arts such as Engineering, Agriculture, and Mechanics. Economics proper, especially the Principles of Economics, is primarily concerned with that particular aspect of goods which, as we noted in the first chapter, *makes them economic,* that is, *value,* though it is not entirely confined to this topic. When dealing with the physical, technical, side of economic goods—and production is mostly concerned with this side—we limit our study to certain most *general* aspects of the matter.

## Illustrative Problems

1. The conception of "produce" held by the man who calls middlemen parasites is really the same as the one given in the text, though we emphatically deny his contention that middlemen are parasites. Defend that statement.

2. "St. Thomas is not a producing island. Its importance consists in its position as a harbor of refuge and a coaling station, and as a place for refitting vessels." Show from the passage that St. Thomas *is* a producing island, as we understand the word.

3. Have the playing cards of a gambler utility? Are they wealth? Has a diamond ring utility?

4. A man who is getting no income now but expects to have one six months from now borrows $100 from his neighbor, promising to pay back the $100 and $6 more at the end of a year.

(a) Does the $6 represent any advantage—service—received by the borrower?

(b) If so, can the lender reasonably be credited with the production of that service?

5. "Only miners, lumbermen, farmers, and such like ought to be called producers; for they are the only ones who *add* something to the total wealth. The rest merely change the form or relations of the things which the above-named produce."

Show that there is no essential difference in the contributions of the farmer, the miller, the baker, the grocer, and the delivery man.

6. "The Chinaman lives economically. He earns all he possibly can and saves it and takes it back to his native land. He is a very economical consumer, and *instead of being a wealth producer, acts as a leech upon the wealth of the nation,* sucking in all that he can and taking it away to enrich the land of his ancestors." Criticize the part in italics.

7. Mr. X hires the opera house for an evening and hires the Mendelssohn Quartette to give a concert in it. I pay 75 cents to hear the concert.

(a) In precisely what does the wealth which I buy consist, the work of the singers, the pleasure I derive from the singing, or something else?

(b) Did the Quartette produce the wealth I bought, or something else?

(c) If the Quartette did not, who did?

8. "Thus there are today tens of thousands of lawyers, bankers, traders, middlemen, speculators, and others, whose functions, *necessary* to the capitalistic régime, would (under socialism) cease to have any value. They would be compelled because of this to enter the producing class."

(a) Show from the quotation itself that, under a reasonable interpretation of the phrase "producing class," the groups of persons named are already in that class.

(b) May the labors of these persons be productive now, although they would not be productive under socialism? Don't forget to explain.

9. "Labor alone is the producer of wealth; take away labor and not all the capital in the world could produce anything."

Allowing the second clause to be true as a statement of fact, does it prove the proposition contained in the first?

10. Accepting the conception of wealth given in this text, the conductor of a street car is a producer of wealth.

(a) Just what form of wealth does he produce?

(b) For whom does he produce it?

(c) Who produces the wealth I buy when I ride in the cars?

## II

## Economic Factors of Production

**Factors in General.**—It is obvious on the least reflection that to produce wealth or economic goods necessitates the combined operation of different things,—different elements, forces, conditions. To raise potatoes, for example, we need a place on the land, suitable soil, labor, tools, sunlight, moisture, nitrogen from the air, and so on. Now, all these different things—these elements, forces, conditions,—we call *factors of production.* They include everything which contributes to the result attained; and their number is legion. For purposes of distinction, we usually refer to them as physical or technical factors. But not all of these factors belong to our study. A very considerable number of them we call *non-economic,* meaning that they are lacking in the characteristics which belong to all things economic. While all of them are useful, not to say necessary, to man, they are not appropriable, or are superabundant, or are given gratuitously by the government, or for some other reason fail to take on the property of value, especially pecuniary value, which is the distinguishing mark of economic things. Non-economic factors include the sunlight, moisture, and nitrogen, mentioned above, also the body of knowledge inherited from the past by each generation, the protection of government necessary to successful production, the many direct contributions of government to productive processes, the gratuitous advice and assistance of other persons not directly participating in a particular task, and many other things one could mention. Many of these non-economic factors are absolutely essential and so of a generic importance indefinitely great. But, in general, the economist gives them brief consideration because they do not belong

to his realm or belong to it only in a very limited sense. His study, therefore, is chiefly occupied with those factors of production which are strictly economic.

**Economic Factors.**—The distinguishing characteristic of economic factors was noted above. Such factors have *value,*—in the present order, have *exchange value,* and that expressed in terms of money—*pecuniary value.*[2] These economic factors are very numerous, including the land, the great variety of substances out of which or with the help of which man produces goods, and many different types of effort or sacrifice which man himself must undergo. In some important economic problems, we may as well at the outset recognize that the differences among factors are largely irreducible—that nothing is gained by treating them together. But, in many other connections, it is convenient, almost necessary, to group these factors into a few large classes. One of the most common methods of doing this recognizes three such classes: (1) materials, services, and instruments, coming from *nature,* for example, iron ore, standing room on the earth's surface, water power; (2) labor services supplied by *man himself;* and (3) materials and services from instruments which have been *produced* to be used in further production, *e.g.,* pig iron, the services given off by an engine. The various factors of the first group are usually designated by the one term *land;* those of the second by the word *labor;* and those of the third by the word *capital.* We will now make some more specific comments on each of these three types of factors.

**Land.**—That land in the broad sense above noted is necessary to the producing of goods is too evident to need serious argument. Obviously nothing can be produced without having in it stuff, material; and, since man cannot *create substance,* such stuff or material must come from nature. Things of this sort constitute the *primary raw materials.* Again, it is plain that we can do nothing without a

[2] A particular factor might be an economic factor under the present order though it might be merely a technical factor under some other order. A shortage of supply is necessary to make anything an economic factor, and this may be produced artificially where the naturally abundant supply is under a single control.

*place* on which to work, locate buildings, machinery, etc. Still, again, the simplest agricultural operations require the activity of the *biological forces;* while getting needed power requires the assistance of the *expansive force* of *gases* or the power of *moving* air or *falling* water.

But, though these various elements of natural origin are so manifestly factors in production, *not all which serve in this capacity are true economic factors.* Thus, air, moisture, and sunlight, while necessary to production as physical or technical factors, are not controllable or appropriable, and therefore lack the element of value,—for which reason, they have no standing as economic factors. Again, position on the earth's surface, though appropriable, may fail of being counted as a true economic factor. In partially settled countries some of the land actually in use is no more desirable than much which is not in use; there are other waste pieces lying all about which could be substituted for the used piece with no decrease in the product, and at practically no expense. Now, because other land of its kind is so abundant, the particular piece first occupied will have no price. It will be a free good, like air or moisture, and so, according to our definition of "economic," will not be an *economic* factor.

But, after all, comparatively few of nature's contributions can be disposed of in this way. While position on the earth is free in the wilderness, it is in settled communities very distinctly not free, because, in proportion to the population, it has become *scarce.* Commonly, then, land, as position on the earth's surface,—the original, unproducible, indestructible earth—is a true economic factor. No argument is needed to show that the same is often true of Primary Raw Materials, such as coal and iron in the earth and standing timber in the forest; these also usually have value because relatively scarce, and so must be accounted.

Some might, perhaps, object to the argument that land necessarily comes to have value and so comes to be an economic factor, in this wise. "All land was originally a free good, a gift of nature. That it now has value and, so, is an economic factor in the sense here used, is due to unjust laws which authorize private persons to own it,—make it their property." The unsoundness of this view is easily shown. Ownership is essential to the existence of exchange value; but such value cannot be given by ownership alone; there must be

*scarcity* as well. If there is monopolistic ownership, to be sure, this scarcity itself may be secured artificially, and so the economic character which the scarcity helps give to the land will be in so far arbitrary in nature. But the ownership of land is not usually monopolistic; there are many competing owners. It follows that the scarcity necessary to give land value—make it an economic factor—cannot be due to the fact that that land has become subject to *ownership*. Such scarcity, broadly speaking, is a *natural* condition, a condition arising, not from a policy which man deliberately adopts, but *because the quantity and capacity of the elements furnished by nature are definitely limited and prove to be inadequate to satisfy all man's needs.* Even under socialism, land would have a natural value because of its natural scarcity, and for that reason would be an economic factor, just as truly as now; only, the owner of the land would then be *the state,* and accordingly the contribution made by the land in production would be credited to the state rather than, as now, to private individuals. We must conclude, therefore, that, wherever land is scarce relatively to need, it should be counted as one of the true economic factors of production.

**Labor.**—Under this head we include all services contributing to the existence of commodities which have their origin in human effort. This should be understood as meaning not only labor in the popular sense of physical exertion, but also mental and nervous efforts of any sort—bookkeeping, managing, advertising, or promoting. It makes no difference how humble the effort or how high, it makes no difference whether the effort be directly applied to the materials out of which the good is being produced, or whether it be applied indirectly, as in the management of a concern or in service on the board of directors—that effort classifies in the economic sense as labor.

That the functions thus performed by labor are essential to almost every kind of production, is too evident to need argument. Labor is, therefore, a factor in production,—a physical or technical factor. But it is no less certain that labor is also *a true economic factor.* It cannot be had for the asking; it is scarce relatively to the need for it; it has exchange value.

**Capital.**—As indicated on page 54, capital is commonly defined by economists as being produced goods used to assist in further production. That such goods play a very important part in the productive process is surely evident. Almost all industries except the most primary ones work upon *materials* which have been *produced* as distinguished from the primary raw materials mentioned on page 55. Again, almost every worker must have *tools,* instruments, which have to be *produced.* Still, again, we could accomplish but a tithe of what we now accomplish save for the help of great *natural powers* such as falling water; and these can be made available only by the help of elaborate *constructions* such as dams and water wheels. In turn, these powers can be *utilized* only through great *machines* which have to be produced.

Again, capital, conceived in the way above indicated, that is, as consisting of a body of intermediate products, products devoted to producing other products, is not only an important factor in the productive process—it is also *an economic factor.* Such intermediate goods, machines, tools, materials, cannot be had gratuitously. We must pay for them, just as we have to pay for labor or for the use of land.

This, however, is not the end of the matter. Capital, as thus conceived, is of course a factor in production and an economic factor. But, then, capital as thus conceived is nothing more than the land, labor, and previous capital entering into it; and, going back to the very beginning, it is nothing more than *the land and labor* entering into it. In other words, if this way of conceiving capital covers everything contained in it, we scarcely ought to talk about capital at all, but only about *the capitalistic method of using land and labor.* Still further, the natural place to make any needed comment on this special method of production would seem to be under the factors really involved, namely: land and labor.

We naturally ask, then, why does not the economist pursue such a course? The answer is that the economist believes that, in some sense or degree, there is to be found in capital *some element* other than land and labor—that the use of the capitalistic method involves *some condition which the land owner as such or the laborer as such cannot fulfil*—an element which, therefore, makes capital into a factor

other than mere land and labor. He further believes—better, perhaps, knows—that this element, as well as land and labor, has its price, and, therefore, is not only a factor, but also *an economic factor*. On the basis of the belief just indicated, he naturally sets about trying to find out just *what it is that constitutes this distinctive element in capital, how it is brought into existence, what function it performs,* and so on. The following chapter will be devoted to an attempt to cover in some measure these problems.

# CHAPTER V

## CAPITAL AS CAPITAL

The close of the last chapter brought us to the point of conceiving capital as having in it some element additional to the land and labor which produced it, and therefore as, in some sense or degree, constituting a factor different from such land and labor. As such a different factor, it surely calls for a special treatment. We now undertake this task; and since it is one of the most difficult in economic science, we shall have to ask for more than ordinary care and patience on the student's part.

### I

### Capital as Carrying-Power, Waiting-Power

**How the Problem Arises.**—We will begin by setting before ourselves *the general group of phenomena associated not only with production but also with our whole economic life, which are chiefly responsible for the existence of our present problem.* Let us suppose that, because of some unparelleled catastrophe, the total population of a given modern community is instantly taken out of life, though everything else remains as before. Let us suppose, further, that an observant and intelligent visitor at the scene of destruction makes a rough inventory of all forms of products—produced wealth—to be found in the place. Doubtless as a result of his efforts there would present themselves a number of interesting and important groupings of these products; but only one of these is especially significant for our present purposes. That one divides all the economic products into two groups as follows: (1) a small body of products and services of products [1] which, if the great catastrophe had not come, would have been devoted to the satisfying of immediate wants, and (2) a great body of products and services of products which would

[1] To be explained in a moment.

not, and, generally speaking, could not, have been put to such immediate use, but would, instead, have been kept in reserve for the satisfying of future wants. These two groups we may perhaps advantageously designate as *active* goods and *reserve* goods, or immediate-service goods and future-service goods. They may also be distinguished as active goods and idle goods, though the latter designation is liable to cause misunderstanding.

Figure 1. Active and Reserve Goods

This distribution of the whole body of products and services of products belonging to our imaginary community, into active goods and reserve goods, is brought out in the accompanying diagram, Figure 1. The lower, heavily-shaded portion of the rectangle represents the active goods of the community; the upper lightly-shaded portion represents the idle or reserve goods. The marked difference in the size of the two portions brings out the point that our supposed visitor would find the active goods, immediate-service goods, constituting but a very small share of the total.

**Reserve Goods Indispensable.**—The above account of the probable conditions of things in our hypothetical community has obviously implied that such a condition is not at all abnormal, is in fact just the natural, usual condition. Such a relation between the quantities of idle and active goods as that indicated *is bound to prevail in any community with a highly developed industrial system. High efficiency requires that we spend a large share of our productive resources in maintaining a stock of the goods which are not to be used in the satisfying of immediate wants.* Let us note some of the more important *reasons* why this is true.

**Contingent Reserves.**—Perhaps the case which displays this necessity in the purest form, with the least admixture of other ele-

ments, is to be found in what we may call *contingent reserves,* by which we mean reserves which are held to meet needs which cannot be precisely anticipated, needs which are more or less unexpected, contingent. Manifestly such reserves are practically indispensable in the case of many consumption goods. No one above the pauper class would think of trying to get along with only one collar or only one shirt or only one pair of socks, making it necessary to go without any while the one was being laundered. In like manner, we always have in the house more food than will be wanted for the next meal; more fuel than will be wanted during the one day; and so on. And one reason why this is necessary is suggested by the word "contingent"—such reserves are needed to meet situations which may arise unexpectedly, situations which, because they were unexpected, could not, without reserves, be provided for at all or only at much inconvenience.[2]

But contingent reserves are needed not only in consumption but also, and on a far larger scale, in *production.* The factory devoted to making shoes needs to keep stocks of leather, nails, thread, parts of machinery, shipping cases, etc., considerably in excess of precisely ascertainable needs. Further, this does not merely apply to the *things used* in the productive process; the factory must also keep contingent reserves of the *product itself*—its own product. It could not afford to be content with a stock just sufficient to meet the demands of the moment, since these could not be calculated in advance. Nor could it be content with a stock just equal to the average demand, since there would be variations *above* this average as well as below. This is still more conspicuously true for the *shop which deals in* the shoes of our factory, since the dealer has not the power possessed by the manufacturer, through his control of plant, machinery, and labor, of *speeding up the process* by which shoes are turned out.

This case of contingent reserves is graphically presented in Figure 2. The shaded rectangle at the left represents the amount of a particular product which the manager considers necessary to provide for

[2] Doubtless there are other reasons for keeping such reserves beside this contingent element; but contingent reserves give us a case which is theoretically of much importance.

the possible needs of the period of stocking-up customary in his line,—a week or a month or whatever it may be. The portion of this total which in all probability will actually be used during that period is represented by the larger of the two sections into which this rectangle is divided by the horizontal line. In the first compartment of the enclosed space, we have the state of things at the end of the first period. The larger portion of the stock has been utilized, as is shown by its appearing heavily shaded in the space between the two hori-

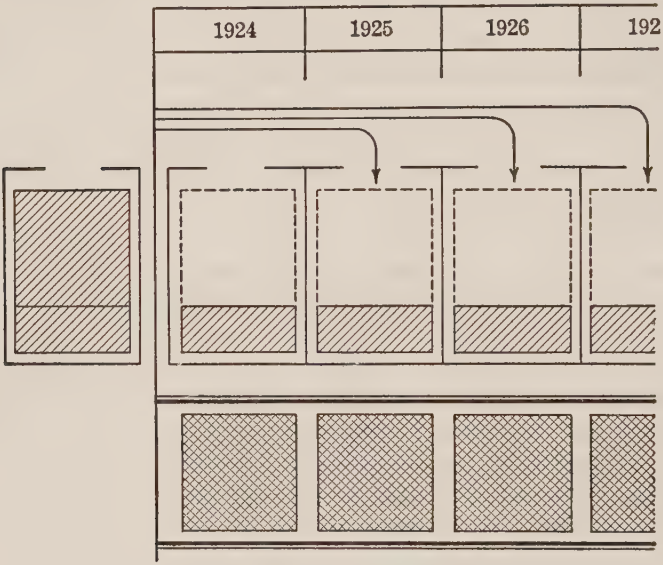


Figure 2. Contingent Reserves

zontal lines below. But, even when this has been done, a portion still remains in the lightly shaded rectangle above. This, of course, is the reserve. In the second compartment, the management is represented as renewing the stock to its first level by purchase outside or by production within (the bent arrow from above indicating this operation). As before, the productive processes of this period use up what is needed (indicated by the appearance below of the heavily shaded square); and, as before, a surplus or reserve substantially the same in amount as the preceding remains intact. And, obviously, this course of things must go on indefinitely.

**The Periodicity of Nature.**—We have noted the particular reason for the maintenance of stocks of idle goods, reserves, which grows out of our inability to anticipate our needs with absolute precision,—a fact which leads us to designate reserves of this type *contingent* reserves. But there are many other conditions making the maintenance of reserves in one sense or another very necessary. Notable among these is the *periodicity* of nature in respect to her productive processes. Thus practically all kinds of crops mature only at certain seasons of the year. This compels us, in the case of almost any farm product, to provide for the total needs of any year during a few weeks or months of that year; and this in turn means that during much of the year we must be maintaining reserve stocks of such products far in excess of immediate needs.

**Installment-Service Goods.**—A much more important reason why we have to maintain reserves of goods or their services than any yet mentioned is to be found in the fact that efficiency in production requires us to make use of many produced goods, tools, machines, buildings, etc., *which give off their services only in stages, little by little—installment-service goods* we may call them. Thus take the case of a farm tractor which, for the sake of simplicity, we will suppose to last in full efficiency for a period of five years and then all at once become useless. Such a machine must be thought of as a bundle of services measured most naturally in some *time* unit, say a year or a quarter or a month. By having control of the tractor for any such interval, we are able to accomplish much work of various sorts. The first quarter it gives off one installment of possible service, the second quarter another installment, the third another, and so on; and manifestly we could get the benefit of these services only as they were given off. That is, *during the first quarter we could utilize but* ONE *service.* But, now, though we could enjoy only one service during this quarter, *we should have to have on hand the whole outfit of such services tied up in a tractor lasting five years,* that is, twenty in all; for such a tractor *can be made only as a whole.* It follows that *during the three months which pass while we are getting the first installment of the tractor's services, we should have to keep in idleness the remaining nineteen;* while we were utilizing the second

installment, we should have to keep in idleness the remaining eighteen; and so on. This is brought out in Figure 3. The tractor ready for use at the end of 1923 is represented by the vertical rectangle at the extreme left; the divisions of this rectangle made by the incomplete partitions represent the twenty installments of three-months services which the tractor is supposed to give off during its lifetime. In the first quarter of 1924, the first installment is used up, as is shown by its transfer to the space between the horizontal lines below, while the nineteen unused installments remain above, showing that, though unused, they have to be "carried." In the second quarter, the second installment is used up and so passes into the space below, leaving eighteen idle installments to be carried. And so on.

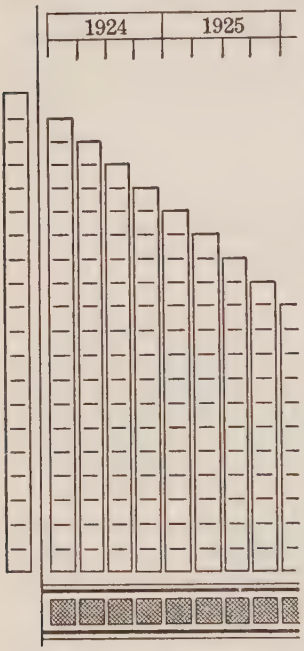


Figure 3. Installment Service Goods A

But it is hardly necessary to say that the life history of *a single tractor* does not fully cover the situation. By hypothesis, our tractor lasts but five years, and therefore *must be replaced* if this system of production is to go on. Consequently, while the twenty services bound up in the first tractor, are being utilized, we must be making another bundle of tractor services, that is, another tractor, to take the place of the first when the twentieth service is used up. It follows that the employment of this method of production requires *the continuous maintenance of a fund of twenty idle services of tractors* partly derived from the old tractor, partly from the new.[3] This is brought out in Figure 4. In this we have side by side eight columns, each

[3] Understood literally, this of course applies only to the community taken as a whole. The farmer does not set about making another tractor little by little, but accumulates during the lifetime of the first tractor the sum of money necessary to buy a second one made by some one else.

containing twenty divisions representing twenty different tractor services of three months each. The first contains *nineteen* belonging to the original tractor—lightly shaded—and *one* belonging to the new; the second column shows *eighteen* services of the old and *two* of the new; the third, *seventeen* of the old and *three* of the new; and so on.

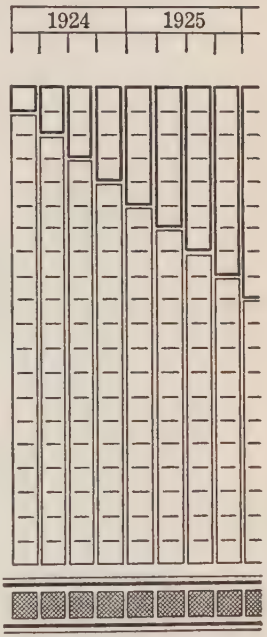


Figure 4. Installment Service Goods B

**Many-Stage Goods.**—The last reason we shall mention why efficiency in production requires that we should maintain a large stock of reserve goods is to be found in the fact that the materials out of which many commodities are made, those intermediate products which eventually emerge as *final* products, *have to pass through several or many different preliminary stages,* and, while actually in any one of these, cannot be utilized in the satisfying of wants—while passing through these stages, they are merely *to-be* goods, *inchoate* goods, goods *in the making.* Thus the shoes which I wear must have been first *skin* on the body of some animal, then *hide* in process of tanning, then *leather* at the shoe factory, then finally shoes. Up to the last stage, they plainly *must have been reserve goods—idle goods, from the standpoint of the satisfying of immediate wants.*

This point is illustrated in Figure 5. The product chosen is some rapidly growing tree, say a catalpa, which matures sufficiently for making fence posts in, let us say, five years. The square in the upper left corner represents a plantation of these trees started at the beginning of 1924; at the beginning of 1925 we move it down into the second compartment, indicating that it has advanced a one-year stage toward the status of a matured product; the beginning of 1926 finds it in the third stage; and by 1929 it is ready for utilization. Obviously, this productive procedure necessitates maintain-

ing every year a fund of idle wealth represented by one of the squares.

But here, again, our statement is quite incomplete. If this system of production is to go on continuously, we must have, in addition to the plantation of catalpas started in 1924 to provide product

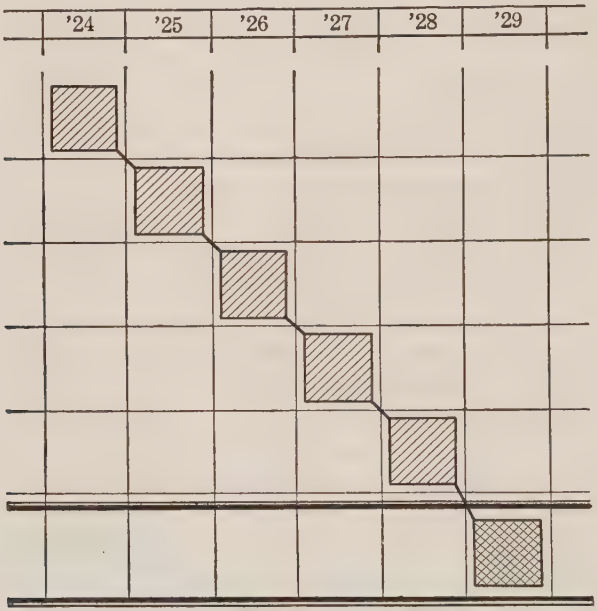


Figure 5. Inchoate Goods A

for 1929, a second plantation started in 1925 to supply product for 1930, a third started in 1926 to supply product for 1931, and so on. That is, once the system is fully established, we must maintain each year, not *one,* but *five* plantations, one in each stage of growth. This is illustrated in Figure 6. The plantations of every other year are shaded more lightly than the intermediate ones to make them easily distinguishable; but *the total after 1928 is in each case five plantations.*

The preceding discussion has made it plain that the condition of things with respect to products supposed to prevail in our

imaginary community is absolutely necessary to the existence of any highly efficient economic system: in addition to the goods destined for the satisfying of immediate needs, we must maintain an enormous fund of goods which, from the standpoint of the present, are idle goods, useless goods, goods which are not satisfying any wants of ours. It is, indeed, true that each individual unit of such goods will sooner or later be utilized to satisfy wants; but by that time each must have a substitute to replace it, so that the fund, the total,

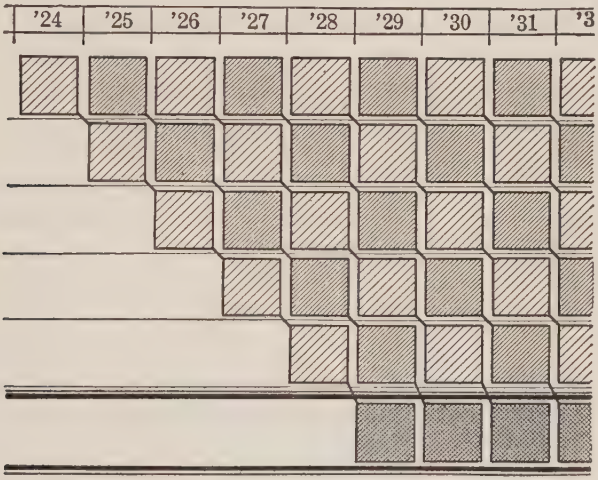


Figure 6. Inchoate Goods B

of such idle, useless, goods remains the same constantly. *Looked at as a fund,* those goods are never utilized, are always in reserve, always idle.

**Problems Involved.**—The explanations of the last five or six pages have been primarily devoted to setting before the student those phenomena involved in the production of economic goods which lead the economist to add, to the list of factors necessary to production, one which he calls capital. In doing this, however, we have more or less anticipated the solution of the deeper problems which these phenomena suggest. Those problems are chiefly: (1)

Does the necessity for a fund of reserve goods involve the recognition of a new factor, a factor additional to labor and land? (2) if so, what is the precise function of that new factor? and (3) is the factor thus isolated an economic factor as well as a technical one?

**Capital an Independent Factor.**—The first of these problems is one of great difficulty, and there is not as yet general agreement with respect to the proper answer. That capital cannot be looked on as *wholly* a new factor is a proposition which would probably gain general assent. Since the goods making up the reserve fund on which we have laid such emphasis are *products,* they must be *produced,* as mere physical objects, in just the same way as other products, that is, by the use of all the factors necessary and so, of course, by *labor and land,* as well as by capital, if there is such a thing. It follows that, looked at in one way, those goods are *merely embodiments of these antecedent factors* and, therefore, to a considerable extent are merely *"congealed labor and land."* Our first problem, therefore, resolves itself into this: Is so-called capital *only* congealed labor and land? Put affirmatively: Is there not in capital, or in the method of production which employs capital, an element which, in some sense or other, is different from, additional to, labor and land? Probably most economists would agree that the correct answer to this question in its second form must be an *affirmative* one,—there is an element in capital different from, addition to, labor and land; the chief difficulty is found in determining upon the best method of establishing the point and in ascertaining precisely what constitutes this additional element.

**Decisive Proof.**—The consideration which, in the opinion of the writer, furnishes a decisive proof of the contention that capital or, anyhow, the employment of the capitalistic method, involves an element additional to labor and land, is to be found in a fact of business returns familiar to everyone. That fact is that the returns from any business must be great enough so that the person responsible for owning, "carrying," the reserve goods necessary in that business will get, in addition to the amount necessary to replace those goods in so far as they are consumed in the productive process,

*something more,* a *surplus,* a *residuum.* To illustrate, if a firm has $40,000 tied up in the reserve goods of its business, and puts into its annual output of product $30,000 worth of goods and services from these reserve goods, it must get out of the business, not only the $30,000 necessary to cover this outgo, but also *something additional,* say $2,400.[4] Now, since the $30,000 is adequate

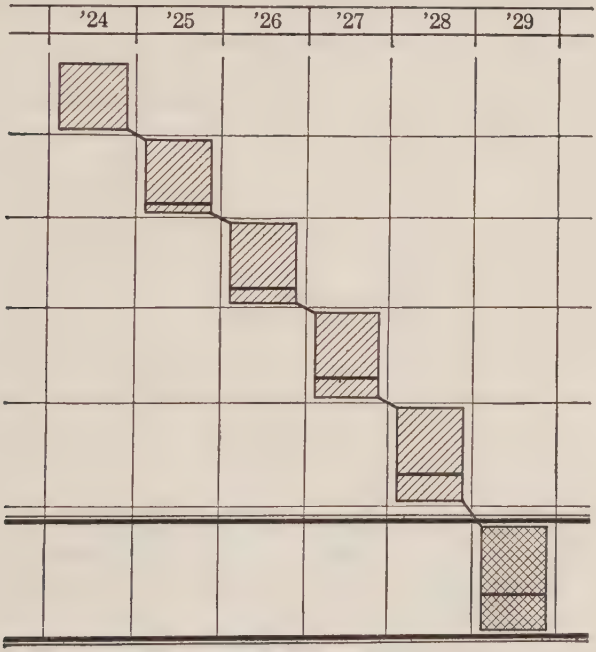


Figure 7. Return to Capital as Capital

to cover the concrete capital consumed, the $2,400 in excess of that sum must represent some feature, some peculiarity, of capital or the capitalistic method different from, additional to, labor and land.

The point just made is given graphic illustration in Figure 7. The diagram there appearing is the *value* analogue of the illustration represented in Figure 5. The latter diagram, it will be recalled,

[4] In fact, there will need to be a residuum greater than this to cover the contribution of still another factor, or another contribution of this same factor, capital. This will appear in a moment.

represents the development of a catalpa plantation which, only after a period of five years, is sufficiently matured to satisfy immediate wants. But the development there represented is *physical.* The square, which is found a step further down each year than it was the preceding year,—the plantation having moved each year a stage nearer maturity,—represents this plantation *merely as a physical product.* But in actual life there will be a *value* development as well. Even if we suppose the plantation to need no labor of any kind after the setting out of the first year; even if we suppose that the land used is a free good, so that no allowance has to be made in the value of the product for the contribution of the land; nevertheless *five years must elapse* in order that we may get the benefit of nature's gratuitous contribution to the fitness of these trees to satisfy human wants. Because we must keep, say, $1,000 worth of wealth tied up in this plantation for these five years, the product has to show, and in actual life will show, an increment of value each year. Accordingly, in Figure 7, the plantation is represented, after the first year, not by a series of equal squares, but by a series of rectangles increasing in area each year. With each of the rectangles the portion below the horizontal line represents the addition to *value* which, as experience shows, is bound to come with each succeeding year.

The fact that there is such an addition to value shows that there is something about the capitalistic method of production—some condition of its employment—which we have not yet clearly isolated. For, in the long run, the value of products cannot be greater than the value of all the elements entering into their production.[5] It follows that, if we find an unexplained element in the value of products, we may be quite sure that there is a corresponding factor which, though not yet isolated, is necessary to the producing of that product. Now the increment of value here considered is just such an unexplained element. It cannot be explained as corresponding

[5] This does not involve deciding whether the value of factors is determined by that of product or *vice versa.* Whatever be the true course of causation, there can be no doubt that, generally speaking, the value of product and that of all the factors must show a close correspondence; so that, if the value of product is greater than that of the factors hitherto enumerated, this must be because some other factor has been overlooked.

to the labor element in the product; for, by hypothesis, there is no labor put in after the first year and this is represented by the original square appearing under the year 1924. Again this increment of value cannot be explained as corresponding to the contribution of nature in developing the trees toward that maturity which fits them to satisfy man's need; for, by hypothesis, nature, land, is in our example a free good, has no economic character,—no more requires value in the product than does the sunshine or the rain. The fact, then, that such an increment of value is bound to appear surely shows that there is something about the capitalistic method of production which constitutes a factor in production different from, additional to, labor and land.

**Capital as Capital.**—We have seen that, though capital is largely the embodiment of our two original factors, labor and land, there is something connected with it, or anyhow with the capitalistic process as a whole, which constitutes a factor in production additional to labor and land. But obviously this limits the "otherness" of capital to some one phase or aspect of that capital or of the capitalistic process. In talking of capital with only this special phase or aspect of the matter in mind, I shall designate it, *"capital as capital,"* in contrast with what we often call *capital goods* or *concrete capital,* meaning by the latter the actual concrete products which constitute that capital. But, having showed that we must recognize the existence of something about capital which gives to it independence, we have still to answer the question: What is that something?

**Function of Capital as Capital.**—Perhaps the most natural way to attempt the answer is to ask: What is the *function* involved in capitalistic methods which is not performed by labor or land? Understood in the most immediate sense, this question has been answered by anticipation in our account of the phenomena characteristic of a capitalistic economic order. If we are to employ the methods which mark such an order, *we must maintain a great volume of products which are in reserve,*—which, from the standpoint of the present, are of no use to us. But, manifestly, the power

to do this does not come as a matter of course. Not every person, not even every community, can do it. These reserve products must draw on our limited productive capacities just as truly as do the goods devoted to giving immediate service; and, each for each, they cannot be as important as the latter, just because they have to do with wants which are only *possible,* as over against wants which are already *actual.* It follows that, generally speaking, we can employ methods of production which involve *maintaining reserves only on condition that we have capacities to produce which can be spared from the service of the present;* which, in turn, requires that we should, generally speaking, have *accumulated a surplus* of the products which we have been accustomed to look upon as essential and so can afford to turn our capacities to the production of reserve goods; which, finally, requires that we should have *saved, practiced abstinence,* in order to accumulate such a surplus. Emphasizing the first and most immediate of the three conditions named, we say: The capitalistic method can be employed only on condition that some person has been brought into a position which enables him to *own, "carry" the reserve products* constituting the concrete capital of the community. We may affirm, therefore, that *the distinctive function of capital as capital is to own or carry the concrete reserve products of the community.* Since in the majority of cases this function involves "waiting," putting an interval of time between our productive efforts and the possession of product, there is much to be said in favor of the contention that *waiting* is the true function of capital as capital; and we shall often employ such language.

**Distinctive Peculiarity of Capital.**—Having isolated the distinctive function of capital as capital, we are in a position to isolate *the precise peculiarity* about capital which marks it off as something different from the two original factors, labor and land. That peculiarity is the fact that capital as a fund of goods represents, indicates, embodies, the power of the persons who are the actual or virtual owners of those goods, to occupy this position,—*the power to be owners.* From this standpoint, capital as capital might be defined as owning or "carrying" power. If, on the other hand, we stress the point of view which sees in "waiting" the distinctive func-

tion of capital as capital, we may define that concept as *"waiting-power."* I shall not hesitate to employ this phrase as a synonym or substitute for owning power.[6] Going a step deeper to the first condition lying behind the power to own or "carry" reserve goods, we may say that the distinctive peculiarity about capital is the fact that, looked at as a mere fund of goods in general, wealth, it is a *surplus,* a *superfluity,* a *something in excess of the needs of the immediate present.*

**Definition of Capital as Capital.**—It follows from the above account of the peculiarity which makes capital a factor independent of labor and land that "capital as capital" may be defined as the fund of reserve goods conceived as being a fund of wealth, economic goods in general, *in surplus, in excess of immediate needs.* It, of course, has no existence independently of those goods: it is merely those goods looked at in one special way. Obviously, it is an abstraction. But so is every concept an abstraction. When we think of the passengers in the rear seat of the automobile as making the machine ride more steadily, we are making an abstraction; for, of course, these persons are not merely ballast to our car, but also human beings, who love and hate, have joys and sorrows, eat and sleep, work and rest, and so on,—who, in short, can be looked at, thought of, in a vast variety of ways besides that one which for the moment is of interest to us, that is, their serving to steady the car. Abstractions are not unreal things, but merely the real looked at in a limited way, with others of its various aspects ignored.

**Capital as Capital an Economic Factor.**—In noting on pages 67-68 the problems which the capitalistic method of production involves, we enumerated a third, in addition to the two which have just been considered, namely: whether the element which we have isolated as a factor additional to labor and land is also an *economic* factor. This question, however, was necessarily answered by implication when we established the reality of some not yet isolated factor by

[6] I do not believe, however, that the word waiting can properly be substituted for "saving" as expressing *the process by which capital comes into existence.*

showing that there is in the product, and so of necessity in the productive process, a value element unaccounted for; since, as was brought out earlier, the possession of value is the most characteristic feature of an economic, as distinguished from a non-economic, factor. It is not necessary, therefore, to show that the factor which we have isolated as additional to labor and land is an economic one. On this point, there is no room for difference of opinion.

A diagrammatic illustration of the theory here presented as to the distinctive office of capital as capital is given in Figure 8. Let us suppose that the large oval in the upper compartment of Figure 8 represents a certain quantity of labor, while the heavily shaded rectangle connected with that oval by the arrow pointing from left to right represents the amount of some product ready for consumption which that amount of labor could produce by a *direct, non-capitalistic* process, and *without appreciable passage of time.* In contrast, suppose that the two small ovals in the same compartment represent each one-half of the original amount of labor; that the first half is devoted to making an intermediate product which is then combined with the second half of the labor in producing the same kind of consumption product as before; that, when our original stock of labor is used on this second plan, the output of consumption product is forty per cent larger than when that labor is used on the direct plan; and that in this case, as in the preceding one, there is no appreciable passage of time. Since, by hypothesis, the time required is negligible in both cases, there is obviously no reason why we should not choose the second more efficient method,—*the roundabout method,* we call it,—and of course we should do so. Such roundabout methods would be universally employed; the whole product would be credited to the labor used; and there would be no thought of trying to isolate this other factor which we call "capital as capital."

But it is hardy necessary to say that, in most cases of *roundabout* production, the facts are quite different: such methods not only bring a great increase in product, they also usually require periods of time which decidedly are appreciable, while the periods required in direct production are almost negligible. Thus during the

harvest season, at any rate, the dweller in a sparsely settled district can have fruit to consume which he has gathered but a moment before. If, in contrast, he sets out to provide for his needs in this direction by the indirect process,—starting a berry patch or an orchard, bringing it to maturity, then enjoying the crop,—he must be content to put several or even many years between the beginning of the process and its final fruition. In our figure, the situation

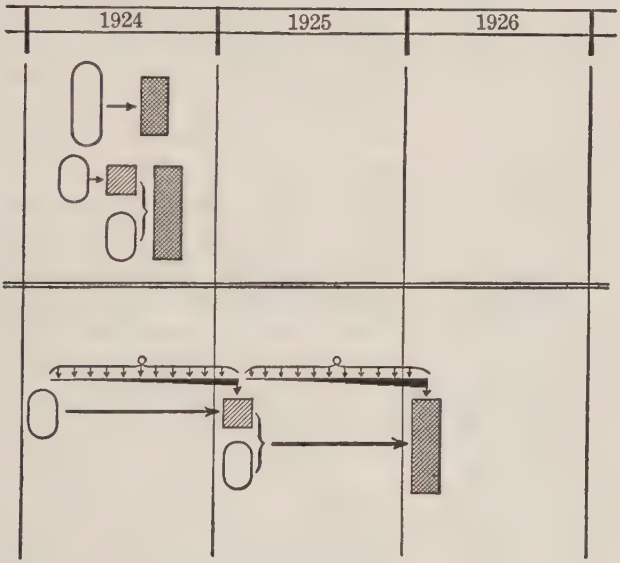


Figure 8. Capital as Waiting "Carrying" Power A

thus brought about is represented by the diagram in the lower compartment, in which the roundabout process presented in the upper compartment as not requiring time is represented as taking two full years. The fact that this new situation makes it necessary that producers should be provided with "carrying" power, waiting power, is indicated by the two horizonal brackets which bridge the two intervals of one year each. Just as the horizontal arrow going from the first labor oval to the lightly shaded square and, in turn, the arrow going from this square and the second oval of labor to the heavily shaded rectangle, indicate *their* participation in the pro-

ductive processes, so the little vertical arrows dropping down to the long widening arrows which terminate in the intermediate and final product indicate the participation in the productive process *of capital as capital,* owning power, carrying power, waiting power.

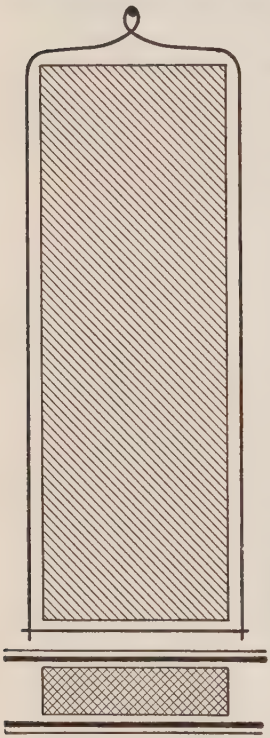

Figure 9. Capital as Waiting "Carrying" Power B

The above method of bringing out our doctrine as to the function of capital as capital, when applied to the *whole body* of products belonging to a community, appears in Figure 9. Here we have the same two rectangles which appear in Figure 1; this time however, the large, lightly shaded rectangle representing the fund of reserve goods, is inclosed in a frame having a ring at the top, for hanging upon a hook above. This symbolizes the function of capital in carrying, owning, upholding the fund of reserve, or immediately speaking, *idle* wealth which is necessary to the high economic efficiency of the community.[7]

### Illustrative Problems

1. Suppose that the rectangle in Figure 3 represents a dwelling house which will last just 20 years and so will give off twenty services of a year's duration each, and that each division of the rectangle represents one of these twenty annual services. What would be the function of capital in connection with such a dwelling? Give some reason suggested by our previous discussions why a family that was expecting to live in Ann Arbor for four years would prefer to rent such a house rather than to buy it. What is a person who rents such a dwelling for four years virtually doing?

2. Josiah Wright, the wagon maker, is making a lumber wagon which he expects to sell to some neighboring farmer. Now, a wagon

[7] For some differences in the way of conceiving capital and in the extension given the term, see Note 1 of the Appendix.

is undoubtedly capital or capital goods; yet in making that wagon, Wright is not, strictly speaking, producing capital. Explain the riddle. Show that Wright for various reasons needs to have capital himself in order to be a producer of wagons.

3. "The socialist contention that producing with the aid of capital, as contrasted with producing without such aid, is merely employing our labor and land in a different way, though suggesting a point which is correct, is after all inadequate." Defend that statement.

4. In an economic society like that of today, new capital quite naturally appears first in the form of accumulations of money or bank credit. Argue in support of that statement.

## II

### Capital as Responsibility-Taking Power

We have thus far recognized only three classes of factors the operation of which conditions the existence of practically any and every economic product. With these three, economists usually stop. But there has emerged more or less clearly an implicit recognition of a fourth factor,[8] namely, *assuming the responsibility of production—willing that production shall go on.* That this is an essential condition is obvious. Failure to isolate it in setting forth the different factors is, perhaps, due to the fact that under simple industrial conditions it is too intimately associated with one or more of the other factors. That the farmer who uses his land, labor, and capital to raise wheat must *will* to raise wheat is too evident to need comment,—indeed, it is involved in saying that he so uses them. Is it not, then, a mere fantastic refinement of theory to separate this function in the total process from the rest? The reason for a negative answer is not far to seek. The plain fact is that the more or less complete separation of the responsibility-taking function from the other functions involved in production, instead of being a mere refinement of the theorist, is *characteristic of actual industrial practice.* The men who are responsible for the producing of the vast majority of goods and services, outside agricultural products,

[8] It seldom appears explicitly in discussing the factors of production.

rarely own the land which they use, perform little or no labor themselves, and own only a part, anyhow, of the capital employed in the business. This would seem to establish pretty conclusively the claim of this function to be a separate one in the productive process,—to be a fourth factor in production.

**Responsibility-Taking Belongs to Capital.**—It must not, however, be overlooked that, under the present order, this function, though plainly distinguishable from the three before discussed, is after all necessarily *connected with one of the factors already treated,* namely, *capital.* The man who assumes the responsibility of willing that production shall go on either must himself supply the capital needed, or must have other property with which to insure the capitalists from whom he borrows; since, otherwise, not he but they would assume the responsibility. In other words, the function under consideration may be conceived as *one of two capitalistic functions,*—the two being (1) the "carrying" of the reserves (waiting) and (2) responsibility-taking. In any case, our general point is evident enough: the function described is very real, is absolutely necessary, and is easily distinguishable from the one which we have recognized as peculiarly the capitalistic function, that is, "carrying" the reserves. We shall, therefore, recognize it as a fourth factor in production without further effort to define its precise relation to capital in the narrower sense.

**An Economic Factor.**—The above discussion makes it clear that assuming the responsibility of production is a factor in production,—something without which production cannot go on. But it is also an economic factor; for it commands a price. The men who perform this service must, generally speaking, receive a profit in return for their services.

**Scope of This Function.**—This function of responsibility-taking, which we have just isolated, involves making the general decision to produce in the field chosen, the bearing of anxiety, the assumption of various kinds of risk, and a limited amount of managing,—so much as is incapable of delegation to persons working

for hire. Such a function is plainly the most vital and central in the whole productive process. Nature provides material; labor provides power to rearrange the material; capital provides carrying power, enabling these materials to be arranged by a roundabout process; yet, though all these were present, no product could come into existence without the *willing* that the required rearrangement of material should take place. The will-to-produce is the productive factor *par excellence.* All other factors contributing to a business are naturally conceived as *auxiliary* to this; *their services are assembled and combined through the will-to-produce;* and out of the will-to-produce emerges directly that commodity which is the product of the business taken as a whole.

## Illustrative Problems

1. "Discovery and invention have doubtless played a very large part in securing our present high industrial efficiency. But they are not the whole thing. The increase of capital has been equally necessary; for, without capital, invention could have accomplished little or nothing." Defend and illustrate the last sentence.

2. "The common pursuit of forestry as a private business almost had to wait until capital became relatively very abundant." Why should this be true of forestry more than of wheat raising?

3. The following is taken from a short story in a recent number of one of the popular magazines. The hero inherited great wealth in rolling mills and has for several years successfully continued the business. He is also public-spirited and liberal. Referring to his charities, the author says:

"What was it that he had given? Something that he . . . had never earned. His hands had never touched belt or pulley. He looked at them curiously. *It was the toil-hardened hands of twelve hundred other men that made his giving possible*—the hands of the men he was planning to turn off on Monday."

Show that, if this was a normal case, we could impute to the services of the twelve hundred workmen *only a part* of the net output of the mills; that the portion going to the proprietor was reasonably enough credited to his contribution to the business. Enumerate several elements which probably entered into his contribution.

4. "The most of us live by our wits—spend our time wheedling the true producers, the men who work with their hands, into sharing with us the things which they produce."

Give several illustrations of kinds of labor necessary to production which would not naturally be described as working with one's hands.

5. Some writers have been disposed to affirm that, in the last analysis, all capital gets its start in a surplus of the means of subsistence, particularly food. This undoubtedly has considerable force as applied to primitive conditions. Illustrate the proposition for a community of fishermen.

# CHAPTER VI

## THE DIFFERENT AGENTS IN PRODUCTION

The preceding discussion has dealt with the fundamental or primary factors employed in productive processes. But, obviously, the control of these several factors must be in the hands of human beings, else they would not be economic factors. Accordingly, we are able to name a class of producers, of *human agents in production corresponding to each of the different factors.* This classification has already been anticipated; but a more explicit reference seems desirable.

**The Laborer.**—The agent in production corresponding to the first factor is, of course, the laborer,—the human individual who furnishes services which are the product of his own effort. It makes no difference whether the services are of physical or intellectual character; it makes no difference whether they are of the humblest sort, or of the greatest and most conspicuous, the man who furnishes them is a laborer. Promoting is labor, and managing is labor, as we have seen; and the promoter and the manager are therefore laborers; the $100,000 president of a corporation is a laborer as truly as his office boy or the mason building his walls or the machinist in his shops.

**The Landlord.**—Just as the laborer is the human agent in production corresponding to the element or factor called labor, so the agent corresponding to the factor called land is the land owner or *landlord.* The landlord is the individual who furnishes for productive purposes the use of land or land services. It is possible, as we conceded in the preceding section, to have an economic order in which land owning is not permitted, and therefore one in which this agent of production is not represented by any private individual.

But it is not now possible, nor has it been possible since the very beginning of society, to have an order in which there was not some sort of landlord present as an agent in production. At the first moment any part of the existing land comes to be wanted by more than one person, at that moment it acquires value, and takes on the character of an economic good. Someone then inevitably appropriates it in order to reap the advantage of its superior desirableness; this someone may be an individual person or the community as a whole; but, whether one or the other, we will certainly have to secure his participation before we can utilize the land as a factor in production. Such was the course of events in early societies, and such will always be their course. Undoubtedly we can if we like substitute public for private landlords; but the landlord is still a necessary agent in production, and we can never get rid of him.

In saying that a landlord is present in every productive act, we do not of course mean to imply that he always exists as a distinct person. The land factor, as we have pointed out, is a different thing in its nature and in its contribution from the labor factor. But this is not to say that the land and labor cannot be controlled simultaneously by the same person. On the contrary, it is very common for the laborer to furnish his own land and for the landlord to perform his own labor—a perfect example being that of a farmer or gardener who tills the soil he himself owns. Nevertheless, in admitting the presence of the two agents in the same person, we by no means reduce the two agents to one. To the extent that a man labors, he is a laborer, just as if he owned not a foot of land; and, for all the land he furnishes, he is a landlord, just as if he performed no labor whatever.

**The Capitalist Proper.**—The third agent in production is the *capitalist,* the individual who owns, "carries," the reserve goods of the community. The capitalist does not labor; he does not furnish land; he does not assume the responsibility of making the business go; and, generally speaking, he does not even put at risk his principal or the income therefrom. As capitalist, he simply supplies the surplus which constitutes the carrying power or waiting power necessary to make possible the use of roundabout methods of pro-

duction. The use of "capitalist" in this definition is highly technical, and subject in some degree to the charge of arbitrariness. But it is no more so than the best of the others which we might adopt; and, because of its practical utility in the further analysis of our subject, we shall regard it as correct.

It is hardly necessary to remark that the same person may be a capitalist, a landlord, and a laborer. Men who own buildings and machinery very frequently own the land upon which they operate, and also, as laborers, attend to the operation of these intermediate goods. The farmer is the most obvious of many examples of a man who is capitalist, landlord, and laborer in one.

But, while we recognize the possibility of a coalescing of the different agents into one, the emphasis, especially as regards the capitalist and the laborer, should perhaps be placed on a contrary tendency. In a state of primitive industry, laborers almost universally own their tools, and men who own tools are also the wielders of them. But modern conditions of production tend more and more to separate the two agents. The amount of capital required for a modern business undertaking is very great, the carrying of a single machine, which a single laborer can operate, often representing the tying up of thousands of dollars of purchasing power. The ordinary laborer cannot by any effort of saving accumulate a great enough fund of money to engage in this sort of production, and accordingly the saving is and must be done by other people who perhaps perform little labor in the ordinary sense. And even when laborers do save something from their incomes, the accumulations seldom make them masters of the particular tools they use. Their money is deposited in a bank, and, by a process to which we shall give more attention later on, establishes them as part capitalists in concerns other than those where they are employed, and usually in concerns of which they have no knowledge.

But, even if there were no such tendency as the one just described, even if the three agents existed usually in the same individual, this fact would not, in our logical analysis, reduce the three agents to one. In so far as a man labors he is a laborer; in so far as he furnishes land, he is landlord; in so far as he furnishes carrying power, he is a capitalist.

**The Entrepreneur.**—The primary, central factor in production is responsibility-taking; hence the primary, central agent in production is the person, natural or legal, who supplies this factor. Adam Smith (1776) called this person the undertaker, a designation now out of vogue. Recently some writers have taken to using a newly-coined term, enterpriser. But most writers using the English language nowadays employ the French equivalent of Adam Smith's term, the word *"Entrepreneur."*

The *Entrepreneur* is the agent who assumes responsibility in productive undertakings. If our analysis of economic factors has been understood, little further exposition will be required at this point. The entrepreneur is not a laborer but an employer of labor; he is not a landlord, but a renter of land; he is not capitalist, but a borrower of capital. He rents from the landlord, borrows from the capitalist, and hires a body of laborers; and, marshaling together the elements obtained from these, he institutes production.

**Function of Entrepreneur Complex.**—It should be remarked, however, that the division of functions cannot be so precise in the case of the entrepreneur as in that of any other agent. Even as entrepreneur, he cannot divest himself of functions which, from their nature, seem to belong to labor or capital. It is true that most of the labor furnished by some entrepreneurs could usually be performed quite as well by laborers they could hire. In respect to labor of this sort, therefore, the entrepreneur is merely a laborer. But certain duties he can escape only by ceasing to be an entrepreneur, for example, appointing the higher director or managers of the business, and making certain final decisions with respect to the conduct of the business. These acts constitute labor as we ordinarily understand it, the putting forth of personal effort. Yet the entrepreneur does not therefore classify as a laborer; for these acts cannot be performed by a true laborer, but are inseparable from his functioning as entrepreneur; in performing them he is not less, but rather more, of an entrepreneur. A similar complication arises in the furnishing of capital. An entrepreneur may and usually does put some of his own capital into a business. With respect to that capital, he may be thought of as both capitalist and entrepreneur.

By means of it, he is in part furnishing the service of waiting necessary to the conduct of the business. He, therefore, credits to himself interest on this capital just as he would pay it to a lender. But the same capital serves in part as the basis of his power to perform his distinctive office as entrepreneur, that is, assuming the responsibility and risk of production. He, therefore, expects the entrepreneur's remuneration on this capital, in addition to the interest he receives on it as a mere capitalist. In other words, in respect to that portion of the capital which he himself supplies, he is both capitalist and entrepreneur, and gets pay for both types of service.[1]

**Corporate Entrepreneurs.**—It is sometimes necessary to distinguish different kinds of entrepreneurs, namely, the individual and the collective entrepreneur. The term, individual entrepreneur, as an entrepreneur existing in a single person, sufficiently defines itself. The collective entrepreneur may exist in any one of the legal business entities such as the Partnership, the Joint Stock Company, or the Corporation.

In the case of industries undertaken by corporations, the corporation as such, the collective unit, is from the standpoint of formal logic the true entrepreneur. But cautious interpretation is here necessary. The corporation, acting through its usual organs, the president, the secretary, and general manager, cannot be the entrepreneur, because these organs are created by a more fundamental power, the board of directors. Again, the corporation acting through the board of directors cannot be the real entrepreneur, because that body is created by a power still more fundamental, the general meeting of stockholders. When at last we reach the general body of stockholders, acting in the way prescribed by their charter for the decision of vital questions, we are in the presence of something

[1] In this analysis, if the entrepreneur gets fifteen per cent on the investment, five or six of this must be reckoned as interest, only the remainder as true profits. In practical business, it is more usual to think of the whole fifteen per cent as profits, though most business men would at once admit the theoretic propriety of dividing that fifteen per cent into different parts: true interest and true profits.

which may fairly be called ultimate,—there is nothing behind to determine its action. This general body of stockholders, therefore, should probably be recognized as the true claimant for the title and functions of entrepreneur. In some respects, on the other hand, the stockholders as a mere aggregate of individuals seem best to deserve the title; particularly since the *starting* of a corporate undertaking, determining whether or not the industry shall be carried on at all—the taking of ultimate responsibility for production—rests with investors as *individuals,* not with the body of stockholders formally organized. Accordingly, for some purposes we have to locate the entrepreneur of a corporation in the stockholders formally organized, while for other purposes we must recognize this agent in the mere aggregate of stockholders.

**Functions of Different Agents Combined.**—Finally, we must say of the entrepreneur what we have said of all the other agents, that he does not necessarily exist apart as a separate individual, natural or legal. Illustrations will at once occur of men who are entrepreneur, capitalist, landlord and laborer all in one. In fact, there probably never is in the real world any such complete separation and specialization of the different agents as might be suggested by the foregoing analysis. But, in any case, the point already much emphasized must be remembered, that, even where all agents exist in a single person, they are logically distinct, *because their functions are distinct.* As a laborer, the man labors; as a landlord, he furnishes land; as a capitalist he furnishes waiting power; and as an entrepreneur he furnishes responsibility-taking, an element which includes a small residuum of labor and waiting.

**The Entrepreneur the Producer.**—To conclude this discussion let us repeat what has before been clearly hinted at, regarding the relation of the different agents. The cooperation of all the agents is required in practically all productive undertakings; and, since there are no degrees in necessity, it would be incorrect to say that one is more necessary than the others. Nevertheless, the last agent discussed, the entrepreneur, does stand in a peculiarly significant

relation to all the others and to the product. In a sense, he merely employs the other agents as his auxiliaries, and he is responsible for the product. Hence, in the ordinary way of thinking, we esteem him as more important than the other agents. In recognition of this judgment we shall call the entrepreneur the producer *par excellence,* and where "producer" is used in the later pages of this volume without qualification, it will be an entrepreneur whom we have in mind.

## Illustrative Problems

1. "In cooperative production (meaning production in which the workmen own the business) the place of the *entrepreneur* is taken by a manager elected by the workmen."—Textbook. Criticize. How *is* the entrepreneur constituted in cooperative production?

2. "Today, all over the land, masons, hod carriers, carpenters, and so on, are building palaces which other people are to live in. When socialism triumphs, all this will be changed. The worker, no longer robbed of the fruits of his labor, will himself occupy the palaces he builds, wear the broadcloth he makes, and eat the choice viands he produces."

(a) Does justice require that the worker should have the right to consume the particular object he expends effort on? Explain.

(b) If it did, would the *particular* set of workers—masons, hod carriers, carpenters, and so on—who construct the palace have the exclusive right to enjoy it? Explain.

(c) Show that other persons besides "workers" in the sense here used have supplied conditions necessary to the existence of the palace.

3. Until recently it was usual to teach that the peculiar function of the entrepreneur is to *manage, direct,* industry. One feature of modern industrial organization almost compels us to reject this idea. Explain.

4. "Postponing consumption so that production may be carried on in a roundabout way is the function of the capitalist."—Textbook. Explain and illustrate.

5. Why do we say that every stockholder of a corporation is an element in the corporate entrepreneur while a bondholder, who also has capital in the concern, is not?

6. Not many years ago Mr. W, after some months of painstaking negotiations, induced a number of persons owning certain lands on the

Copper Range to join with him in organizing a corporation to build a railroad, open mines, etc.,—Mr. W putting in some land of his own. For his fee, Mr. W was to receive a certain number of shares in the stock of the company.

Distinguish, with explanations, the two economic roles played by Mr. W in this matter.

# CHAPTER VII

## GENERAL CONDITIONS OF PRODUCTIVE EFFICIENCY

Production, as we have seen in the preceding chapter, is accomplished by the united action of several different factors. Productive efficiency, the subject of the present chapter, means a condition or state of economic production in which the employment of a given quantity of these different factors results in a relatively large or desirable product.

That a high degree of efficiency should be maintained is, of course, directly to the interest of the entrepreneur in charge of any industrial enterprise. But it is also to the interest of every person in the community. By the very first principle, formulated in Chapter II, every person (or community) in a cooperative order such as ours, tends to gain from any increase in the economic efficiency of other persons or communities with which economic relations are maintained; and, directly or indirectly, every person in our system maintains such relations with every other person. Doubtless the extent to which individuals profit personally from such efficiency is subject to great variation; but we can scarcely conceive of anyone so situated that he would not gain something. It becomes pertinent therefore to make some inquiry into the laws and principles under which production may attain, and remain in, a state of high efficiency.

At the outset of this inquiry, however, it should be noted that Economics does not attempt an exhaustive investigation into the *technical* conditions of productive efficiency. In its study of agriculture, for example, it does not concern itself directly with fertilization, drainage, and rotation; nor, in its study of manufacturing, does it touch upon power generation, the choice and placing of machinery, and the like. These problems lie rather within the special province of the technical arts themselves; they are problems

of agriculture and manufacturing, not of Economics. The field of Economics lies deeper. It embraces the more general principles which underlie and govern the purely technical phenomena of all the arts alike. Let us begin with a broad survey of these principles, and continue with a more particular examination of some of them in their relation to the different economic factors.

## I

## Capitalistic Methods

One clearly established principle is that industries can usually increase their productive efficiency by the introduction of *methods which employ a large amount of capital.* Methods using some capital are probably without exception better than methods using none; and, as a rule, methods using much are better than those using little.

In our day practically all production is capitalistic. There are to be sure marked differences in the degree to which capitalism is carried in various industries. Some industries, from their very nature, seem able to use more capital than others located in the same city or country; and the industries in one city or country may, in general, use more than those in another. But, however great these variations, the fact remains that most industries can use all the capital available, and the more they use the higher is the productive efficiency to which they attain.

**Utilize Natural Powers.**—The principal explanation of this increase in efficiency is to be found in the fact that, through the roundabout method, men are able to reinforce their own powers with *the powers of nature,* and thus to rearrange the materials upon which they work with relatively greater speed and precision. In the beginnings of industry, when the primitive fisherman, for example, made a net and a boat to use in catching fish instead of depending on his naked hands alone, the gain in efficiency was enormous; and even in later stages of industrial development some invention like the steam engine, the dynamo, or the cotton gin, gives to our productive efficiency an increase startlingly great. These

facts would seem to be so familiar as to need little comment. Still they are not infrequently overlooked in times of popular excitement; and legislative measures are adopted and enforced which discourage the accumulation of capital or drive it out of the community. It was needful, therefore, that the point should receive some emphasis.

## II

## Specialization

We saw in Chapter II that the present economic order is one of heterogeneous cooperation, wherein each person specializes; and that each individual in the system finds this specialization advantageous because it enables him to enjoy more goods and a greater variety of goods, and goods of better quality than he possibly could if he attempted to produce everything for himself. Now, of course, the primary reason why specialization enables the consumer to consume more and better goods is that it enables the producer to *produce* more and better goods. We have thus already clearly implied that specialization is one chief source of productive efficiency. Let us now consider this point a moment from the producer's standpoint as we formerly did from the consumer's.

**Utilizes All Agents.**—In the first place, specialization utilizes *all* agents and instruments of production, even the inferior ones. It splits up our complex industrial processes, dividing the small tasks from the great; so that a person who cannot perform a whole process, because he is incapable of doing the difficult part of it, may nevertheless contribute something to the whole because he is capable of doing the easy part. Thus a boy who would be quite helpless as the manager, machinist, or salesman of a concern, may make himself very useful running errands. On the other hand, specialization utilizes superior instruments and agents *most fully*. A steam locomotive designed for pulling forty or fifty loaded freight cars across the country at thirty miles an hour is kept constantly moving in that service, while lighter trains in the terminal are handled by locomotives of smaller power; a skilful surgeon

need not trifle away his time at mowing the lawn or going to the newspaper office for his paper—he can abandon those tasks to inferior agents and devote all his skill to dangerous operations in the hospital.

**Utilizes Aptitudes, Natural or Acquired.**—Specialization *utilizes natural aptitudes,* especially in the land and labor factors. A man endowed with a mechanical genius is kept busy at mechanics, instead of being required to cultivate corn; and land that will raise fifty bushels of wheat to the acre is reserved for that valuable product instead of being given up in part to forestry or grazing. Specialization also permits the development, in the labor and capital factors, of *artificial aptitudes.* A pianist can greatly improve the flexibility of his hands, and consequently his skill as a player, from the fact that he is permitted to refrain from heavy manual labor and spend long hours at finger exercises on the keyboard. About the only implement the primitive man possessed was the knotted stick, and he could use it to destroy his enemies, to grind his corn, to pillow his head at night, and for numberless other purposes. But, viewed from the modern standpoint, the implement was not *well adapted* to any of those purposes; and specialization has given us thousands of different implements, creating in each a special aptitude for one kind of work. Again, specialization *economizes in time* for men and machines, since it eliminates the loss, often very large in the aggregate, of changing from one task to another. It also shortens the period of apprenticeship or education—a man can learn to be a skilful mason more quickly than he can learn to be both a mason and a carpenter. Finally, specialization stimulates invention—a man devoting himself completely to one particular job and learning all the niceties of it will find more ways of improving his performance than a man working now here, now there, on a dozen different jobs.

**Use Depends on Extent of Market.**—We have just seen that specialization contributes greatly to productive efficiency. It follows that the full realization of any condition requisite to such specialization must contribute to productive efficiency. Now, as

pointed out at the very beginning of our study, one such condition is *exchange*. Under the present system, specialization and the cooperation it involves is made possible chiefly through exchange. That is, in order to take advantage of the principle that specialization increases efficiency, we must exchange products with one another. It follows that the degree to which this specializing can be carried depends on the extent of our exchanging. If we trade with only a few people, the need for a single kind of goods will be too small to justify any one of us in producing that kind only. Thus, the man who calls himself a barber in a small town can do most of the barbering which his neighbors require at night and on Saturday afternoon; and the rest of the time he must fill in as he can, mending shoes, soldering tin pans, or lending a hand on odd jobs at the garage. He cannot specialize in barbering, or in any one of his other trades, because the amount of service wanted by the community with which he exchanges is not large enough to keep him busy. Hence we have the following:

> **Principle.** *The extent to which productive efficiency can be increased by means of specialization varies directly as the extent of the market.*

**Freedom of Trade Desirable.**—The foregoing principle suggests one of the chief reasons why economists as a class are free-traders. They favor the utmost possible freedom from restrictions because this allows the largest amount of cooperation and thereby enables everyone to benefit most completely by the productive activity of everyone else. All economists, of course, would admit that free trade in some commodities is more important than in others, just because trade of any sort in some commodities is more important than in others. An import duty on hay would for some years not affect us one way or another—it would be a mere futility, since we do not normally buy much hay outside our own country. In contrast with this case, any departure from freedom in steel goods, textiles, and sugar is sure to have notable results, because we naturally import those things in large amounts. But, whether we deal in a commodity much or little, the privilege of trading with-

out restrictions when we see an advantage will conduce to the productive efficiency of all the countries concerned. Hence the following corollary:

**Corollary.** *High productive efficiency depends on a large amount of freedom of trade.*

### Illustrative Problems

1. "Our very large output enables us to make each man a specialist in his line of work."—Willard Storage Battery Company. Why?

2. In most economic textbooks, one meets the phrase "geographical division of labor."
   (a) What do you suppose it means?
   (b) Give some illustrations of it.

3. Give some examples of recently developed labor specialization,—if possible from your own observation.

4. Same as Problem 3 for capital.

5. Why is it that a country store keeps a little of everything, while a city store very often deals in only one kind of commodity, *e. g.*, shoes or china or sporting goods?

6. It is sometimes said that nowadays almost everything is produced for a world market.
   (a) What is one of the greatest gains of having such a market?
   (b) What are some of the most important industrial changes which have made it possible?
   (c) Suggest one or two of the most serious evils which would naturally result from it.

## III

## Large Scale Production

It is a fact familiar to all of us that the extraordinary industrial progress of the last hundred years, and particularly of the last twenty-five years, has been accompanied by a great expansion in the scale on which industry is conducted. On the one side, the total output of commodities has greatly increased, their quality has, in general, been improved, and their price lowered—so that today

men who are considered poor may enjoy comforts which a hundred years ago would have been envied by kings. On the other side, we find that the establishments which produce these commodities are not so numerous as they were twenty-five or fifty years ago, but that the individual establishments now producing are in size, as compared to the old ones, very much larger. These two phenomena, it is generally recognized, have been in some measure related as effect and cause; our industrial progress has partly resulted from the enlarged scale of the producing operations. The big store, the big factory, the big railroad has been able to supply its particular product in greater volume, at much smaller cost, and often of much better quality. Large scale production has meant more efficient production.

**Increased Specialization Possible.**—Among the principal reasons for the superiority of large scale production are the following: Large scale production permits a great extension of the policy of specialization. That this policy greatly increases productive efficiency has already been brought out. The particular form of specialization which comes into our present topic is that which manifests itself *within a single industrial establishment.* In such an establishment, when the scale of production is sufficiently large, each man or each machine may take only some very small step in the total process. In a great automobile factory where thousands of cars are constructed every day, it is feasible to install a machine for stamping out a single, very small standardized part of the car, because the number required is so great that the machine can work steadily all day, and probably all night at that one unvarying task; whereas, in a small factory such a machine could be kept running only a few hours per day and so, owing to the expense of installation and upkeep, its use would not be feasible. That large scale production makes possible this extreme application of the policy of specialization is thus one great reason why it increases productive efficiency.

**Economy in Factors.**—A second important reason for the connection between large scale operations and productive efficiency

is the fact that large scale production secures *economy* in the use of different factors or instruments. Two phases of this principle should be noticed.

(1) At certain points specialization has to be carried almost as far in the small concern as in the large one; and the large one permits a *fuller utilization of the specialized factor.* Thus the country store at Four Corners is obliged to employ at least one clerk, although in the long intervals between customers he spends three-fourths of his time whittling the nail keg; in a city department store, in contrast, most clerks are continuously busy waiting on customers. A railroad company producing transportation between New York and Boston is obliged to lay and maintain at least one line of track even if, owing to the competition of other lines, it runs only two trains a day; but if the road conducts a large business, the same single line of track can at a very slight increase of expense be utilized by dozens of trains.

(2) A second manifestation of the economy of large scale production is to be found in the fact that, while each producing concern has to keep in its stock of raw materials, tools, and finished products some *reserves to meet contingencies,* the reserves of a large concern are sure to be relatively much less extensive than those of the small concern. If there are four haberdasher stores in a town with an adult male population of one thousand, each store will need in the spring a stock of straw hats perhaps 50 or 100 in excess of its probable sales. A single large store, replacing the small ones, and with probable sales as great as all of them together, would need contingency reserves but little greater than any one of the four.

**Utilizes Waste Products.**—Again, large scale production makes it possible to utilize *waste products.* A familiar illustration is that of the great packing houses where various portions of the slaughtered animals, which taken in small quantities would be worthless, accumulate to such an extent that the total has considerable value, and can be used with profit. Where cotton is ginned at a small plant, the seed extracted from the fiber is thrown away or destroyed; but large ginning concerns develop from the seed important by-products, oil and meal. The total amount of such

economies effected by large industries is enormous, though a small plant, in attempting to utilize similar waste, would spend more than it would save.

**Bargaining Power.**—Finally, large scale production insures better bargains when a concern comes on the market as a buyer or seller. A large concern can buy its supplies more cheaply than a small one, because the seller, under competition, is willing to accept a relatively small profit in order to close the large transaction; or, more important, he can often sell goods in large quantities at a smaller rate without lowering the profit, because the expenses connected with the large sale—the selling effort, the clerical work, the packing, the transportation—are relatively lower than those connected with the small sale. In selling its product, on the other hand, the large concern has corresponding advantages over the small. Just because it produces more efficiently, it can sell at a lower price and yet obtain quite as high a profit. And, by means of its superior selling force—its salesmen, its advertising, its show rooms, and so on—it can usually outsell small concerns at the same level of prices.

**Limit to Best Size.**—As a qualification upon all the comments made above, it should be noted that industrial units have an indefinite, but none the less real, limit to the size at which they can be effectively worked. The limit is high in some industries, like manufacturing, because the restricted area covered by manufacturing operations makes supervision of the workmen easy. It is low in other industries, such as agriculture, for the opposite reason. The organization unit, the unit having a single managerial, clerical, and buying and selling force, can, it often seems, be enlarged indefinitely; but it is in fact limited by the organizing abilities of business men in the time and country where the unit seeks to operate—a concern may become so large that the securing of honest and efficient management is well nigh impossible. The physical unit of production, the plant, will of course reach a size beyond which it cannot profitably be increased much earlier than will the organization, or management, unit.

## IV

### Integration of Industries

**Meaning.**—In the preceding sections we have discussed the conditions of productive efficiency with regard to which there is much confirmatory experience and little difference of opinion. In this and the following section, we meet two alleged methods of increasing efficiency which are of more recent origin and, in many minds, of doubtful value. One of these methods, which has been named the *integration of industries,* consists in bringing together under one control many industries which, though dissimilar, are *interdependent.* Thus the steel producer does not confine himself to the single process of converting pig iron into steel. He undertakes also to maintain a plant for making pig iron from the ore, and another one for getting the ore from the mine; he may in addition own and operate coal mines and coke furnaces to obtain the fuel he needs; and may construct railways to transfer his various completed or partly completed products from one plant to another.

**Advantages.**—One reason why this integration promotes efficiency is that it enables the producer to realize more fully the gains natural to large scale production. Another reason is that it secures a variety of economies, due to the complemental nature of the industries integrated, particularly in that each of these industries, save the lowest, provides a market for the product of some other member of the series, and thus saves the expenses of selling and diminishes the risk burden. The production of steel, which furnished the first great application of this method, has been and still is eminently successful; and numerous other industries have in late years adopted a similar practice with favorable results.

## V

### Unification of Industries

A very characteristic development of industry during the last twenty years, particularly in the United States, is the coalescing

of many hitherto independent industrial units *of the same kind* into a single all-inclusive unit. Such units are commonly known as *trusts* or *combines*. The practice illustrated in their organization is contrasted with that just described under Integration, in that the latter combines *dissimilar,* though interdependent, units, while trusts combine *similar* units. An integration puts together coal mining, iron mining, pig iron making, and steel making. A trust puts together the American Steel Company, the Carnegie Steel Company, and the Illinois Steel Company.

Evidently the formation of a trust must in most cases realize one of the conditions already considered, largeness of scale in production, and hence it must so far tend to increase productive efficiency. Thus, a combination bank which takes the place of five independent banks will give a much larger output of banking services per unit of cost than the average of the five banks.

But, secondly, the combination unit will naturally have some advantages not necessarily belonging to an original unit of equal size, derived from the very fact that it is the result of combination, —that it has *grown out of a variety of sources.* For different ones of the combining units may have developed specially efficient methods or machines which, hitherto kept as trade secrets, will be much more fully utilized under the combination. In an equally large unit which was a single unit from the outset, many of these methods would perhaps never have been developed. Again, the combination will control plants located in different parts of the country, and will fill orders from the particular plant nearest the customer, thus reducing transportation costs.

**Monopoly, Partial or Complete.**—A third possible ground for expecting greater productive efficiency from a trust or combination is to be found in the fact that such a combination secures partial or complete monopoly in the industry involved. This condition is without doubt very objectionable on a variety of grounds. But we are here concerned only with its relation to efficiency; and, while there is room for controversy even on this side of the matter, the consensus of informed opinion would seem to be favorable to

the claims of the trust.[1] The chief ground on which greater efficiency is claimed for monopoly is that it makes possible a number of economies which are not possible under free competition.

**Legitimate Advantages.**—(1) A big firm with no competition can diminish its advertising, reduce its force of salesmen, and, in general, cut down all the expenses of marketing its product. This is equivalent to saying that the firm can produce its goods—from raw material to consumption stage—with less effort and at less cost; and this plainly means that there has been a gain in efficiency. (2) The monopoly is called on to adjust its output, not to *its probable share* of the total demand, a quantity very difficult to estimate, but to *that total itself,* a quantity capable of fairly exact computation. The monopoly thus incurs less risk or under- or over-production, and so gains in efficiency.

It should be evident from all the above discussion that combination, whether it results in monopoly or not, belongs, on many important grounds, among the conditions with which this chapter is concerned. We are therefore probably justified in saying that, *generally speaking, mere technical efficiency is usually increased by the consolidating of like industries under one control.*

## Illustrative Problems

1. Some of the big farms of East Prussia have their own little railways, locomotives, cars, etc. What advantage of large scale production does that illustrate?

2. Suppose that the five banks of Ann Arbor were to be united into one and that, while each of the uniting banks employs a cashier, a teller, a bookkeeper, and a messenger, the consolidated bank were to employ a cashier, a paying-teller, a receiving-teller, a discount-clerk, a collection-clerk, a head bookkeeper, an assistant bookkeeper, and a messenger. Show that the facts as stated illustrate *two* gains of large scale industry.

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[1] Perhaps the best proof of this is the tendency of all the great industrial nations to favor the formation of trusts (syndicates, cartels) as necessary, to the maintenance of their position in the competition for the trade of the world.

3. "If the four or five dry-goods stores on Main street were united, a great saving in the fund of circulating capital required in that business would be effected."

(a) Argue for the truth of the quotation.

(b) Show that the new plan would probably effect a saving in *fixed* capital also.

## VI

## Industrial Freedom

**Excessive Public Regulation.**—The last quarter of the eighteenth century found most of the western nations dominated by governments which exercised a very complete despotism not only in respect to matters commonly regarded as well within the scope of political action, but also in respect to economic matters. The trade or occupation which each individual might enter was prescribed from his birth; the period to be spent in apprenticeship, learning the trade, was likewise already arranged; and, when he became a qualified workman, the amount and kind of goods he might produce and the remuneration he might receive for them were not determined by his will or choice, but by the law. Manufacturing industries also were regulated in the minutest way; the kind of materials each establishment should use, the amount of materials it should devote to each unit of product—for example, the number of threads in a square yard of cloth,—and the quantity of product it might finish in a given time, were rigidly fixed. And, to insure observance of the laws, inspectors were always on hand who exacted penalties with the greatest severity.

**Substitution of Freedom.**—In its beginning this excessive interference with the spontaneous course of industry was probably justified; it had the negative effect at least of preventing labor and labor's output from falling below a certain standard. But there early developed among business men and thoughtful students a distrust of such interference. It was not only annoying, they thought, and inconsistent with principles of personal right and liberty, but it actually hindered the attainment of the result at which it was

aimed. Nations intended to make themselves efficient and rich, but by the very means employed for this end they destroyed their efficiency and so became poor. For various reasons, near the close of the eighteenth century or in the early years of the nineteenth, the latter notion came to be widely accepted and incorporated into government policy. As a result of this change, or as a result of it in combination with other forces, industry thereafter advanced at a quite unparalleled pace. Hence modern economists have come generally to hold the opinion that, whatever objections there may be to it on other grounds, industrial freedom undoubtedly contributes to efficiency.

**Better Guidance.**—Freedom of *trade* we have already discussed for this viewpoint. It widens the market for each individual's goods, and thereby encourages that *thoroughgoing specialization* which contributes so greatly to industrial efficiency. The freedom of individuals to choose their own occupation and to produce according to self-set and market-set standards, has advantages no less important. In the first place, it tends to give industrial forces a *direction* which will naturally result in the greatest productivity. (1) As a rule, the individual himself is better able than any one else to decide what he is fitted to do, or at any rate what he can do with keenest interest and a good will; hence in occupations freely chosen, both aptitude and interest will guide him in the production of more and better goods. (2) By producing the things for which he is best fitted, a man confers the greatest number of utilities upon society at large, for whom the things are produced. But, conversely, when society comes to obtain these things by exchange from the producer, it also confers the greatest number of utilities upon him. Hence, if a man is free to choose, he will have not only the motive of workmanship pleasure, but also that of economic gain, for turning his energies into the most efficiently productive channel.

**Greater Stimulus.**—Second, and no less important, is the fact that under a régime of freedom men are spurred on by the *stimulus* of competition or emulation. That a man has the privilege of making any product for which he discovers an aptitude, and of selling

the product so widely as to gain a great profit if he can make it well enough,—that he may hope, on the one hand, to gain almost anything if he works efficiently, and that he is in danger, on the other hand, of losing to others almost everything if he does not so work,—these are conditions which call forth the most strenuous efforts of most men. Finally, there are certain moral qualities generally recognized as requisite to good workmanship—self-reliance, decision of character, energy, industry, and so on—which are naturally best developed under conditions where the individual acts on his own initiative, not like an automaton under the guidance of an outside power.

**Disadvantages of Laissez Faire.**—It must be admitted, of course, that the general truth here set forth has, like most others, numerous limitations. Advocates of non-interference have always recognized that some governmental oversight of industry is necessary to secure the very liberty which they wish to see prevail, since one individual may become so strong and so ruthless in the use of his strength that he will restrict the liberty of other individuals. On this ground, governmental action has in our day been extended very far—in the control of monopolistic combinations, for example—and that with the approval of most economic thinkers. Further, experience under the *laissez faire* régime has shown that the industrial efficiency secured by some forms of freedom may be purchased at too high a price. Excessive labor of women and children, physical injuries from improperly guarded machinery, and kindred evils, have called for and secured much remedial legislation. At the present time, there still remain many abuses incident to great industrial liberty the correction of which is perhaps more important than the high efficiency to be derived from that liberty. It is probable therefore that for some time we shall see not less, but more, governmental interference along these lines.

**Positive Services of Government.**—In addition to these purely restrictive forms of interference, there are others of a more positive nature which a government may sometimes engage in with results undoubtedly beneficial to industry. By its grant of franchises, a government encourages the building of railroads, thereby giving to

industry all the benefits of easy transportation—especially a wide market—and its dredging of harbors and digging of canals contribute toward the same end. In a new field of activity where there seems to be a lack of private initiative, the government has investigated industrial methods and offered itself, more or less informally, as an instructor. The agricultural experiment stations is an illustration, and the free bulletins and weather reports supplied to farmers. There has developed also in very recent years a strong movement for vocational direction, which aims, not to determine people's occupations for them by authority, but, by expert study of personal aptitudes and of accessible occupations, to *help the individual choose* the work in which he will be most successful. In all these lines, also, it is probable that the future will bring rather an increase than a diminution of governmental activity.

**Non-Interference Favorable.**—Admitting all these limitations, however, the statement that non-interference contributes to efficiency still holds good. The needed control on the one hand, and the patronage or instruction on the other, should be kept at a minimum, and should be carried out with care and discretion. *In general, industrial efficiency is greater under a régime of freedom, non-interference, laissez faire, than under one of much governmental regulation.*

# CHAPTER VIII

## EFFICIENCY OF DIFFERENT FACTORS

The preceding discussion has set forth the more general principles of productive efficiency. It seems desirable in addition to take up separately the different factors concerned in production and consider the conditions of efficiency peculiar to each. Let us begin, as we have in earlier analyses, with the labor factor.

### I

### The Efficiency of Labor

Since the particular contribution of labor to productive processes is the power or force to arrange nature's materials, then labor will be efficient in so far as it arranges those materials relatively well. It remains to inquire what characteristics will enable labor best to exert its force, and how those characteristics may be secured.

**The Physical Side.**—The first essential of the labor factor is mere physical strength and endurance, the ability to put forth a relatively large amount of force at any one moment, and to continue such exertion for an extended period of time. The sources of such strength are fairly well known. They are in part racial, evidently, since the workmen of one race average much higher in bulk and brawn and physical power than those of another race; they are in part matters of a narrower family inheritance, since, of two workmen of the same blood strain, one may exhibit capacities greatly in excess of the other. But with these causes we are not particularly concerned in the study of economics. What we are concerned with is the fact that of two men of equal natural endowment, one may supply much the greater force; and, the reasons of this can generally be found in the superiority of the food he eats, of the house he occu-

pies, and the generally sanitary and helpful conditions under which he lives. From this it is but one more step to the final answer of our question. How do men come by the material goods necessary to enable them to lead the kind of life most conducive to physical fitness?

Our present economic order being one of exchange cooperation, most goods are obtained through exchange from others. But, in such an order, the amount of goods each man gets will be affected by the amount of goods he himself produces and offers in trade, and, on the other hand, by the amount produced in the group with which he exchanges. Hence, the limitation of the goods that can be enjoyed by each man is set by the productive efficiency of the group. Men's real incomes, and consequently their physical strength may, then, be said to depend on an observance of the general laws of productive efficiency set forth in the last chapter—capitalistic, large-scale, *laissez-faire* production and all the rest. That this should be true, from *a priori* considerations is easy to see. But it could also be shown by a study of industrial history and sociology that the living conditions, and so the physical fitness of workmen, have uniformly been far superior in those countries where these laws of productive efficiency have been observed than in countries where they have not been observed.

**The Intellectual Side.**—A second characteristic of the labor factor is mental power. Mental power is important first as the director and the source of skill for mere physical strength; if one does nothing but pick up sticks it is better that he pick them up in an intelligent and clever manner. The need for skilled craftsmanship seems smaller in our day than it formerly was, because the man who once made a complete object with his own hands, tends now to be replaced by the man who makes only a very small part, and that by means of machinery. Nevertheless, the skill that was once needed for the direction of one's hands is now the more needed for the care and tending of the complicated and delicate machines. But there is a further use for mental strength in the labor factor. In our analysis of production we defined labor not as physical force only, but as any and all kinds of exertion, including the higher intellectual forms. Exertion of the mind is itself labor. In our present system of large

scale, highly capitalized production, the purely intellectual exertion of the promoter, the manager, and other agents is the most important labor of all. And so, for such labor, there is special need in the laborer of unusual mental power.

Disregarding natural gifts, men acquire mental power chiefly through the processes of training or education. The first prerequisite of such acquisition is the desire of the individual; and it often seems that where this desire is strongly present it will carry one over all obstacles to the goal. Of this point we shall speak further in a moment. But for the masses of mankind, something else is needed, a something of more concern in economic studies, because it can be provided by economic means. Perhaps the clearest economic source of mental fitness will prove on examination to be identical with that of physical fitness—productive efficiency. For most of us it is necessary, first, that training facilities be provided, free and accessible, if not compulsory, and, second, that the immediate problem of sustaining life should not press upon us too hardly, but leave us leisure and strength for self-improvement. But, clearly, these two requisites will be most fully met in a state of high productive efficiency. A country efficient in production will be a wealthy country; and, other things being equal, a wealthy country will have more abundant means of education, with more opportunity for their enjoyment by its citizens, young and old.

**Motivation.**—A third characteristic essential to the effectiveness of labor may be broadly named as willingness or ambition. However great man's natural endowment of body and mind, and however excellent his opportunities for development, labor will always be ineffective if it lacks in the quality of willingness.

The willingness to work depends primarily, no doubt, on a general attitude of mind which makes the possession of economic goods worth striving for. Occasional individuals with a taste for simplicity prefer to unburden themselves, as they conceive it, of all material things except the bare necessities of life; and, if in addition they are preoccupied with some idealistic pursuit, they will naturally show little inclination to perform economic labor. Likewise certain oriental peoples and religious sects regard serenity of mind and contemplation

as more to be desired than any amount of material wealth. Among western peoples, however, a natural taste for economic goods seems all but universal. So far as willingness to work depends on a desire for the fruits of work, they are willing enough.

The next requisite for willingness or ambition is the availability of goods worth buying. A frontier settler, or a peasant in the interior of China, however keen his craving for enjoyable goods, will not greatly exert himself; he will raise only what he can consume and will in general tend to become a shiftless no-account, unless the products of more civilized communities are within buying distance. But the only stimulus needed for these peoples is productive efficiency in their neighbors, and improvement in the means of transportation and exchange. Thus certain eastern countries have even in this generation become keen, active producers, mainly because western nations brought to their doors commodities which they wanted, but which they could not have unless they produced, for exchange, something wanted by the western nations.

Given a natural taste for material goods, and a stimulation of that taste by the presence of such goods, there is still often something wanting to induce willingness to work. That something is an assurance that, having worked, one will be allowed to consume a quantity of goods proportionate to the effort put forth. In other words there must, ordinarily, be some guarantee of the reward. Now, in the existing economic order, the amount of a man's reward is for the most part determined automatically by the process known as *distribution*. Whether his reward, as so determined, is proportionate to the effort put forth, may therefore much better be reserved for a later part of our study. In some part, however, the assurance of one's reward has its source quite outside the realm of Economics proper. It springs from a general confidence in the moral integrity of the community where one lives and with which one maintains business relations. One must know that his neighbors are not going to steal his goods, whether restrained by their sense of right or by the policing activities of government. One must know that the government itself will not confiscate his property or drain him dry by exorbitant taxes, and that the government is able to defend him from invasion and robbery by foreign foes.

## II

## The Efficiency of Land

The land factor in production furnishes man with position on the earth's surface, with primary raw materials, and with natural powers. The question of land-effectiveness in its simplest form is merely, "How can nature supply man with most materials of the best sort?" So far as nature's own part is concerned, the question is easily answered—she can supply most by being rich, fertile, plentiful. But nature is passive, what she supplies is supplied once for all, or in a blind and purposeless way, so her "activities," if such may be called her mere existence, are hardly a matter for discussion. But from man's viewpoint there is much to be said. How can man realize the greatest amount of utilities from the existing natural supply?

**Advantages of Private Ownership.**—Any given individual can do best for himself with nature's materials if he is free to command all he wants at any time he wants them. Nature's materials are most efficient for me if I can, whenever the need arises, go out and cut down timber, dig ore, or plant grain on any selected piece of ground. But the viewpoint of particular individuals is not important here. *Considered absolutely,* land is most efficient when it is available for that man, among all men, who is qualified to derive from it the greatest product. There are several ways in which this fortunate availability might be secured. For example, a communistic form of government might parcel out various portions of the existing supply to individuals adjudged most competent. Another possible method is for free competition to determine who can produce most from each portion and then for a system of private ownership to reserve for that individual the exclusive use of the portion, free from the interference of others. The latter method is the one generally prevailing at present; it results in a high degree of land-efficiency, and as such will doubtless be preserved until one unmistakably better is found.

A system of free competition, private ownership and exclusive use can, however, be modified somewhat, and the land-efficiency

thereby be enhanced. The condition of free availability for the most competent needs definition. Under some circumstances, land is most efficient if it yields all its materials at once and is thenceforth exhausted. A forest is most efficient for the pioneer and for all who will follow him, if he utterly destroys a large part of it to use for fences and firewood, and puts the denuded land under cultivation in small grain. But, generally, it is best that the large trees only be taken from a forest, while the younger ones are left to finish their growth, and to sow the seed of still other trees to follow them. In other words, nature will make the greatest contribution to productive processes in the long run under a policy of conservation. She will be most efficient through the years if she yields at no one time enough to diminish her future yield. But men, working under conditions of private ownership, cannot always be trusted to persevere in such a policy. Where individual wisdom and self-restraint are insufficient, therefore, the interference of government to advise, and even to enforce, conservation will contribute greatly to the productive efficiency of land.

## III

## The Efficiency of Capital

A very little reflection will make clear that efficiency on the side of capital is conditioned chiefly by three things: an abundant stock, availability, and wise employment. The last of these depends mostly on the skill and capacity of the entrepreneur who determines what shall be produced, and so determines to what use capital shall be put. Accordingly, we are here concerned principally with the conditions which insure an abundant stock of capital, and which insure that the existing stock shall possess a high degree of availability.

**Abundance of Capital.**—In dealing with the abundance of capital, the first problem which meets us concerns the *origin* of capital. By what processes does it come into existence? The answer to this has already been in some measure anticipated, but a fuller statement is needed.

**Origin of Capital.**—The reserve stocks of products of any community, its *capital goods,* have to be brought into existence in exactly the same way as consumption products, that is, through consciously directed labor assisted by land and previously accumulated capital. Just as certain factories are engaged in making hats, golf balls, candy, and other consumption goods, so certain factories are engaged in making engines, machines, tools, and other *capital* goods. At first sight, then, it might seem as if such a factory were the place to study the question: "How does capital come into existence?" In fact, however, we are here interested in *something deeper than mere technical production.* We are looking for the ultimate origin of capital, the moral origin, so to speak. This is a legitimate question to ask with reference to any product; for, under an exchanging economic order, the technical producer of anything, whether it be an engine or a pound of candy, is not, in the most ultimate sense, responsible for its existence. He produces that engine or candy because he knows or expects that other people will buy it from him. He is in effect, therefore, acting as the *agent of those people.* This is evident enough in production *to order;* but production for a general market is not essentially different, for it is possible only because experience has shown that it will work substantially the same as if production *were* to order.

Accordingly, if we wish to know the ultimate origin of capital, *we must go to the principal* rather than to the agent. The ownership of engines or other capital goods means the tying up of large amounts of value so that for an extended period they will yield income—service—to the owner only at *intervals* and *in small amounts.* Not everyone, therefore, can afford to buy and own such goods. How does the actual buyer of capital goods attain his ability to buy? In case the buyer is an entrepreneur merely, he largely borrows money to make the purchase, so that a further inquiry is necessary. How does the man who lends money to the borrowing entrepreneur reach a position where he can give up, say, $3,000 in cash in exchange for a yearly income of $150? The answer is plain. He must have accumulated a money fund which promised to be for a shorter or longer period superfluous, which was not needed for any pressing uses in the present.

**Capital Comes from Saving.**—The accumulation of such a fund obviously requires in the first place that the persons performing the task shall get an income from which the accumulation may be made. That is, he or some factor belonging to him *must produce wealth.* But this in itself, remember, would not make him a capitalist. The same necessity would be present if the person in question wanted an equal amount of wealth to use in giving a fire-works exhibition. His distinctive task as a capitalist lies beyond this,—begins after the wealth has been provided. Out of that wealth, it is his business to accumulate a fund, to be kept intact for an indefinite period, though all the while yielding a small annual income. But this task can be accomplished only in one way: the prospective capitalist must *save, must practice abstinence,* must give up getting *directly* any gratification from this portion of his wealth. Looked at as a man who has by his sacrifices put himself into possession of, say, ten thousand dollars, he is merely a producer of *wealth.* On the other hand, looked at as a man who has given up the privilege of using for the satisfying of his wants, say, five thousand dollars out of this total, he is a producer of *capital.*

At this point, however, a word of caution is needed. The statement that capital can be accumulated only by saving should not be interpreted as meaning that, in producing capital, one necessarily *experiences some deprivation.* To a very large extent, the capital of the community is accumulated by persons of whom this could not be said:—to them saving is often easier than would be consuming the immediate products on which their savings might be expended. But this in no degree changes the real nature of the process. The fact remains that the person who produces capital, instead of using the five thousand dollars of our illustration for gratifications, devotes them to the building of a fund permanently in reserve, a mere income-bearer.

Another point should be noted here—that the person who by his saving is building up capital may or may not retain his savings for long as a distinct money fund. He cannot "spend" them, in the popular sense of the word, that is, pay them out for *consumption* goods such as food, clothing, excursions, and the like, which go directly and exclusively to the satisfying of present wants. But he

can part with the money in exchange for engines, houses, or other income-bearing property; since, in doing that, he merely invests the money, and has in reality as large a sum of wealth as ever. This is a distinction familiar to the business world; but it is frequently overlooked and so becomes the source of a popular fallacy about money.[2]

Bearing these distinctions in mind, the act or process of saving can have no deeper analysis. It is *just saving,* going without some gratification in the present which one might enjoy if he chose. The capitalist receives a money income; he spends part of it consumptively, but refrains from spending the rest—holding it as money or investing it; in consequence, he accumulates a fund with which he himself, or some one else to whom he lends it, can buy engines or other productive goods. As economic society is at present constituted, this is substantially the only process in which capital grows: *get an income; save from that income.* But, since the existence of an income is implied in the saving from it, we may cover the whole problem in a single statement: Under the *existing economic order capital originates chiefly in saving or abstinence.*

## Illustrative Problems

1. Suppose that a community of say 50,000 persons living on an island, completely isolated from all other communities, but otherwise living under an economic system like ours, with division of labor, trade, metallic money, etc., should attempt to increase its capital by issuing $100,000 of paper money.

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[2] Before leaving this point, *a word of caution* ought to be added. In insisting that capital has its origin in saving, we must not forget what has been brought out in another connection, that the supplying of capital involves, not merely the accumulating of a fund of money or credit, but also the actual, mechanical producing of the concrete or goods capital—the engines, cars, machines, etc. We cannot furnish power or carry ore or make nails with stores of money,—we must have real engines and cars and machines. Nevertheless, this way of looking at the matter, which fits the needs of technical production, gives us no light on the *origin* of capital. The technical making of any particular piece of capital does not originate that capital. As remarked above, the man who is really responsible for the existence of the capital is the one who accumulates the fund of money; and the conditions which he has to fulfil in accomplishing this disclose the fundamental nature of the process whereby capital comes into existence.

(a) Argue for the contention that, in general, we should expect this attempt to fail.

(b) Try to find some reasons for thinking that the scheme might realize a small measure of success. (Would said scheme tend to increase the total output of labor services? Would it tend to release any labor hitherto devoted to the old tasks?)

(c) Change the hypothesis by supposing the given community to be in free trade relations with many other communities, and argue that the proposed issue would really increase the capital of the community.

2. "When the primitive fisherman refrains from eating fish in order to accumulate a store to be eaten while he makes a net, we obviously have a case of real saving. But when a capitalist keeps his money rather than spending it, things are very different. The good things our capitalist refrains from consuming have not been made at all; instead, producers, knowing that capital is being accumulated, are making engines, cars, etc., which obviously could not be consumed. But, if they could not be consumed, they could not be saved. Such capital, therefore, does not result from saving."

Taking as your definition of saving this: "Saving is going without something one might otherwise enjoy," show that the capitalist who accumulates a fund of money does really save.

3. Suppose that, instead of proceeding as at present, the capitalist were himself to make the concrete pieces of capital, hoes, plows, planes, engines, etc., and then lend these to producers for hire. Would such making of capital involve saving?

4. Suppose that a communistic state, in order to increase its stock of capital, should proceed to require from every citizen one more hour of labor daily. Would this way of building capital involve saving?

We have seen that capital comes into existence chiefly through saving, abstinence—a deliberate relinquishment of the present disposal of income. What conditions favor the practice of this line of conduct?

**Large Incomes Favor Capital Accumulation.**—One condition certainly would seem to be the existence of *large incomes*. It is very hard for people of small incomes to save anything, and hard for those with moderate incomes to save much; all they can get together is

urgently required for their immediate wants. People with large incomes, on the contrary, are able to save with ease, simply because there remains a considerable surplus after their immediate, pressing wants have been satisfied. But what conditions are favorable to the existence of large incomes? Doubtless the most essential condition is the one we are discussing, namely, high productive efficiency. The man who produces by ineffective methods will naturally have but a small product, and hence will need to consume most of it for each day's sustenance. The primitive fisherman, equipped only with his pair of hands, commanded a very small income of fish; and so it was only with the greatest difficulty that, while feeding himself today, he could save anything for tomorrow. But, once possessed of a canoe and a net, the capitalistic method of fishing enabled him to catch in a day far more than the day required, and hence to save from it much and easily.

**Assured Gains.**—A second condition, or set of conditions, favorable to saving is one which insures to capital the expected advantage of saving. As in the case of labor, the first assurance of an appropriate reward must spring from the existing system of distribution. But there are other sources. A man will have more inclination to save under a strong and beneficent government, where he feels confident his accumulations will not be taken from him by theft, invasion, or extortion. He will save most, too, in a flourishing country, where the industries have become highly capitalistic, so that every smallest addition to his surplus can readily find a use, and that at a rate of interest fairly high.

**Good Banking Institutions.**—A third condition inciting men to abstinence is the existence of social machinery suitable to aid in caring for, and investing, their accumulations. A public banking institution with burglar and fire-proof vaults conduces to saving, because one can intrust his accumulations to this, and be relieved of all anxiety as to their safety. Banks, also, offer strong inducements of another kind, in that they find for the capitalist an opportunity to invest. An ordinary producer knows well enough how to practice abstinence—he can save his hundred dollars, or his dollar, or his dime

a day; but in a complex industrial society like ours he is usually helpless about turning it to use. He sees no business near at hand requiring his savings, and he cannot set out to seek one that does. Even if he found one, he would have no capacity for judging of its soundness. Furthermore, his savings may be very small, and such sums as he could offer would be so inadequate that no business man would bother to accept them. A bank, on the contrary, is a careful student of business enterprises, and an expert judge of their soundness, so it can take off the saver's hands all the trouble of finding an investment. And, finally, since it can merge his small savings with many other small ones,[3] it can quite readily put them to use, and so still further encourage him to save.

A fairly adequate general answer to our question can be put in a single sentence: *The accumulation of capital is favored by the existence of large incomes, by conditions which insure to capital the expected advantages of saving, and by the presence of suitable social machinery to aid in caring for and investing accumulations.*

### Illustrative Problems

1. Give reasons for expecting capital to accumulate more rapidly in England than in Scotland, in Germany than in Persia.

2. Suppose the total income of industry in the United States were divided equally among all the citizens, do you think capital would grow as rapidly as it now does? Why?

3. Explain why postal savings banks would be expected to increase the accumulation of capital; same for loan and trust companies; same for insurance companies.

4. From our present standpoint, argue for or against the system of guaranteeing bank deposits.

**High Availability of Capital.**—We have examined the first requisite of efficiency on the part of capital—an abundant supply. A final question remains: How, after capital has been abundantly

[3] A bank, of course, utilizes not only the funds which people have definitely set apart to play the role of capital, but also a great amount of wealth which is only momentarily idle.

saved, can it be made available for those who need and are competent to use it?

When a man himself uses the capital which he saves, this question has no pertinence. But, in modern industry, capital is generally saved by one set of men and used by another. Availability therefore turns upon how the two parties can get together, how lending can be made easy on the one side and borrowing on the other. The first part of this question has already been answered: lending is made easy by the existence of institutions which specialize in that type of work. But borrowing is made easy in precisely the same way. Where good banking institutions exist the business man desiring capital knows at any moment where a fund lies waiting for investment; and so he can present his demand at this single place, instead of hunting out the individual capitalist—or perhaps many small capitalists. He is also spared the trouble of *proving his soundness* to each small holder—many of whom are anyway unable to judge—and furnishing security to satisfy them. He can prove his soundness once for all before men well qualified to judge, and obtain the whole sum desired without further difficulty.

As under the preceding head, the general conditions for rendering capital available can be put in a single sentence: *The availability of modern capital depends on a high state of entrepreneur credit and high efficiency in the institutions which deal in money capital—banks, trust companies, and so on.*

## Illustrative Problems

1. For some years before and after 1892, it looked to European observers as if the United States were likely to give up the gold standard and adopt silver, thus reducing the value of the dollar, as most expected, by about forty per cent. What effect would you expect this condition to have on foreign capital in the United States?

2. The existence of the ordinary commercial bank enables us to make available quantities of money capital out of funds which are not really set aside for use as capital, but rather are being kept for daily use. Try to explain how that can be. (Suppose that 500 persons kept the funds which they expect to put to everyday use in a bank, and made payments partly by cash drawn out, partly by checks drawn in favor of

one another. Show that the bank could safely treat a considerable part of the funds as if they were going to be permanently idle.)

3. In Germany there are many agricultural loan associations which issue jointly guaranteed bonds to the lending public, then lend to their members on ordinary mortgage security. Does it seem likely that this system would tend to make capital more available to farmers?

## IV

### Efficiency in Respect to the Entrepreneur Function

As has already been made clear, the central function in all production is that of the entrepreneur, the person, natural or legal, who *undertakes* any particular business,—assumes the responsibility of bringing it into existence, or, anyhow, of continuing it. This of necessity requires that he shall carry the major part of the risk involved and that he shall himself perform certain fundamental managerial duties. What conditions, now, are necessary to enable entrepreneurs to serve efficiently in these functions?

There are three chief requisites of efficient enterprising, (1) an adequate supply of land, labor, and capital, (2) judgment and foresight in recognizing opportunities for business undertakings, and (3) a spirit of enterprise, or initiative,—readiness to assume the responsibilities of production when an opportunity is recognized. The first item calls for little comment. Since the entrepreneur achieves all his results in production by using the other factors, his efficiency will naturally depend on having them to use; but all questions relating to the supply of other factors are well enough treated in the pages immediately foregoing. The second and third requisites are perhaps also self-explanatory; but the conditions which foster them in a community are, owing to the central position and the signal importance of the entrepreneur function, worth a moment's examination.

**Education.**—The qualities of judgment and foresight in recognizing good opportunities are in great measure matters of natural endowment. They exist apparently in some men and some races, and in other men and races they are absent. On the other hand, they are to some extent capable of being taught; and, to that extent, those

countries will have the greatest fund of entrepreneur power which employ the best methods of teaching it. A community successful in business and largely given up to business activities and ideals will unconsciously educate itself. By example, on the one side, and imitation, on the other, it will inevitably disseminate knowledge to all classes of people, and pass down a gradually accumulating store from generation to generation. But further, business can be, and, as thinkers are beginning to realize, should be, made a subject of formal study. Recent years have brought an enormous development in this line: the conditions underlying and surrounding business successes are analyzed, statistics are compiled and weighed, and the general principles of economics are used in the solution of practical business problems. Facilities have also been created for supplying this scientific information methodically to anyone who wishes to obtain it. The output of business books has been a striking phenomenon of the last decade, while colleges have grown up which teach not only the broader economic principles upon which business is based, but also the very details of business method. It is not unreasonable to expect that by these means the ability of men in general to recognize and estimate good opportunities will be markedly increased—in other words, that the entrepreneur function in production will be made more efficient.

**Initiative.**—The third quality essential in entrepreneurs was described as enterprise, initiative, or readiness to assume the responsibilities of production. If a country fails to develop men of the peculiarly adventurous type who are willing to assume the responsibilities of production, the entrepreneur function in that country will be very poorly performed. In consequence, since the cooperation of all other factors depends on the entrepreneur, the country may have abundant natural resources, labor power, and capital, but until men appear—perhaps coming in from other countries—who dare to attempt great combinations of these factors, industry will remain at a standstill.

**Limited Liability.**—The enterprising spirit, like good judgment, may in part be attributed to natural endowment—western races

are, or, until the recent rise of the Japanese, were assumed to be, more enterprising than eastern. But probably in greater part this quality depends upon external fostering conditions. Thus, something less than a century back, the unlimited-liability partnership form of cooperative undertaking was much the most common. Under this form, a man starting a new enterprise which might, for all he knew, result in failure, stood to lose all he owned. At the present time, the form of organization more commonly used is one possessing the characteristic of limited liability: the members are responsible for the debts of the organization, not to the full amount of their property, but only to a strictly defined sum—the sum they have put into the business, or perhaps that and as much more. Naturally, under the latter conditions, more than under the former, men will be ready to venture upon new and dangerous enterprises.

Again, where the risk of undertaking enterprises is great, men must have some assurance that in case of success their gains will be correspondingly great. The *patent laws* must be effective, so that when a man launches on the market an untried article he will not be robbed of his unusual gains by others who manufacture the same article as soon as the dangers have been overcome. A man must know also that his property will not be destroyed or stolen by people whom the government cannot control, and that his profits will not be taken from him through merciless taxation imposed by the government itself. Finally, the spirit of enterprise is certain to assert itself more freely where some kind of machinery, legal and industrial, exists to help it. Thus, in earlier times, corporations came into existence only by a special act of the legislature; in our day they are formed much more readily by administrative process under the authority of a general law. Every large city has also nowadays a *stock exchange* where the shares of corporations are daily bought and sold, thus reducing the task of acquiring control of an enterprise to a simple market transaction.

The conclusions of all this part of our discussion may now be summarized as follows: *High productive efficiency in respect to the entrepreneur function, in so far as it is not a matter of natural endowment merely, depends chiefly on the maintenance of conditions which* (1) *minimize the individual risk-burden of undertaking,* (2)

*make possible the quick and easy entry into, and withdrawal from, enterprises, and* (3) *provide or permit large profits where risk is unavoidably great.*

## Illustrative Problems

1. Give two or three ways in which patent right laws contribute to productive efficiency.

2. There is much to be said in condemnation of our recklessness in permitting private individuals to exhaust our vast stores of natural wealth in gold, silver, oil, copper, etc. What can be said on the other side?

3. Was there any excuse for the great liberality displayed in the granting of trolley car franchises in the late eighties?

4. Argue for the contention that a much more efficient protection of the public against dishonest promoters of mining and other enterprises would contribute greatly to productive efficiency.

# CHAPTER IX

## INCREASE IN OUTPUT AND RATE OF PRODUCTION

Looking at the situation broadly, man finds himself set over against a natural world, from which through his own efforts and sacrifices he can and must make himself a living,—can and must produce the goods necessary to life and happiness. This natural world over against which he is set, and from which he must wrest a living, is practically a fixity: even from the standpoint of many generations, it experiences no increase in volume or capacity; indeed, as respects important raw materials, it even shows a diminution. On the other hand, population in most countries, certainly in the world as a whole, constantly increases. It follows that, from a natural plant which is practically unchanging, *an ever-increasing output of economic goods must be produced.* In this situation, it becomes of much importance that we should study the results which follow our *efforts to increase output,* and ascertain, as far as we may, to what extent these efforts are likely to be successful.

Certain aspects of this problem have already been touched upon, at least by implication, in discussing productive efficiency. In view of the fact that different policies in the conduct of production result differently in respect to the volume and goodness of product, it, of course, follows that we can increase total output for any given period over that of some earlier period, *provided that in the earlier period we have pursued a less efficient policy and are now in a position to resort to the more efficient one.* Further, as *discovery and invention supply us with new and more efficient methods and policies,* we can increase total product by resorting to these.

**The Problem.**—But considerations such as the above, though of great importance, are too evident to need any prolonged discussion. There is a much more difficult body of doctrines having their root in the fact that *changes in the proportions in which the factors of pro-*

*duction are combined are quite sure to cause changes in the quantity of product obtained per unit of any one of the factors.* Setting two men to work a piece of land hitherto worked by only one would probably mean a larger total product; three workers might make the product still larger; and so on; though the time would doubtless come when additions to the amount of labor expended ceased to increase product, perhaps even reduced it. Moreover, even while output was being increased, the changes would probably not be uniform. The increases might be more than proportional to the increases in the labor, or just proportional, or less than proportional. Here, evidently, we have a very fundamental problem—a problem which, though seeming elementary, contains a veritable nest of complications.

In the above introduction to our study of the effect of changes in combining proportions, we set out with the fact that some vital factors in production are *limited in amount* and so we need specially to know something about the limits of their productive capacity. In other words, one problem involved in this connection is to determine the obstacles which meet us when we *try to get more out of a fixed amount* of some factor or group of factors. The study of this problem, however, at once brings us to a complemental problem: What is the result of *trying to utilize a larger amount* of those factors which can and do change in amount? If, in using the land of a country, we have come to a point where more labor spent on the land will increase the product of that *land* but only at a less than proportional rate, it follows that we have also reached a point where we cannot make as good use of additional units of *labor,* as we have made of the previous ones. These may be thought of as the principal problems involved in our present study.

## I

### General Solution of Problem for Individual Productive Instruments

As already indicated, our problem is of most significance when we are thinking of a whole people over against its total outfit of natural resources; but, manifestly, we could not expect to obtain light on this larger question unless we had made some study of

*the behavior of individual units* of our productive factors. In order to learn how the total outfit of a nation will react when we try to increase its total production by spending more effort upon it, we must first ascertain how a *particular* piece of land or a *particular* machine or a *particular* power plant behaves under similar treatment. Accordingly, this chapter is devoted to answering the question: *What results follow when we try to increase the output from any instrument of industry by increasing the quantity of the auxiliary factor or factors combined with it?*

**Principle of the Three Stages.**—In making a general answer to this question, let us suppose ourselves to experiment with a common hot-air furnace of the size adapted for heating a 12-room house, and to ask what results we should get from using for each experiment a larger charge of coal than for the preceding one, the total quantity to be applied in a period of two hours. If, for example, we were to make our first experiment using 10 pounds of coal, in the next one 20, in the next 30, and so on, we may be pretty sure that the results would be something like the following: The first experiment would probably deliver no appreciable amount of hot air,—the heat produced being all absorbed by the furnace itself and the conducting pipes. The second experiment with 20 pounds of coal might supply enough heat to raise the temperature of a room of 200 cubic feet to 70 degrees. The 30-pound experiment might raise to the same temperature twice as much space, though the amount of coal used was only one-half greater. The 40-pound experiment might heat 1,000 cubic feet, two and one-half times as much as the 30-pound test, though the increase in coal was only one-third. This *more than proportional* increase in the work done might continue for several more experiments. But presently a test would come which, though *showing some increase* in the total work accomplished, *showed an increase less than proportional* to the increase in the charge of coal. Thus the 80-pound test might give us heat for 8,000 feet, while the 90-pound gave us only enough for 8,800 feet:—the *coal used increasing one-eighth, but the work done increasing only one-tenth.* Finally, after this less than proportional increase in work had gone on for some time, a point would be reached when a larger

amount of coal would smother the fire and *actually diminish* the amount of heat delivered. To summarize, as soon as our combinations began to give results at all they would fall into three groups: (1) Output increasing *more* than proportionally to the increase in the auxiliary factor (coal); (2) output increasing *less* than proportionally; and (3) output diminishing. For convenience in reference, let us call this tendency of the combinations the *Principle of the Three Stages.*

**Of General Application.**—In the above paragraph, the heating furnace supplied an illustration easily understood and one in which the truth of the conclusion laid down is so evident as to make proof unnecessary. But it will scarcely be doubted that the same principle applies quite generally in economic production. If, for example, we were to take a ten-acre field devoted to raising potatoes, and, in successive seasons, use in cultivating that field first 1 day's labor, then 5 days', then 10, then 15, and so on, we should doubtless get results analogous to those found in coaling the furnace. For several experiments the crop would increase more than proportionally to the increase in the labor, then less than proportionally, and finally would diminish.

As to the existence of the first and third stages indicated, there surely is no room for doubt: the amount of labor used might be so small that increasing it would more than proportionally increase the crop, and the amount of labor might already be so great that increasing it would actually cut down the crop. As respects the second stage, some doubts have been expressed, but they seem to have little ground. The universal practice of farmers in a matter so fundamental as this must surely be based on a trustworthy induction; and that practice fully confirms our contentions that the second stage exists. First, farmers do not try to raise all the produce wanted on a single piece of ground. Instead, they use many pieces. But this they would not do, if the amount raised from one piece could be increased indefinitely at the same rate as the labor applied to it. Secondly, after having extended cultivation to inferior lands, they return to spend more labor on the superior ones, when the price rises high enough to warrant spending the additional labor for a smaller pro-

portional return. And this they would not do, unless the policy added *something* to the crop. There is a stage, then, in which output is increasable but not increasable in proportion to the increase in the auxiliary factor.

II

### Illustration from an Imaginary Experiment

The above account of the general principle underlying the behavior of individual industrial factors when we try to increase output by increasing the quantity of assisting factors, is so obviously true for such cases as those considered, so much a matter of everyday experience, that we should almost seem justified in omitting its further discussion. In fact, however, the topic is extraordinarily prolific in misunderstandings; so much so that it seems necessary to spend considerable effort in trying to insure a clear, accurate comprehension of the doctrine itself and the various corollaries and consequences *derivable from it*. To this end, we shall ask the student to follow the assumed results of an imaginary series of experiments, embodying the working of things in very *definite and detailed arithmetic form.*

In this series of imaginary experiments we use each time 20 units of one of the factors, which we will call N, and combine with these increasing quantities of another kind of factor, which we will call L, using first 2 units of these L's, then 3 units, the next time 4 units, and so on. These figures are given in the second and third columns of our table,—the first column being used merely to show the *number* of the combination. The quantity of output which results from each of our imaginary combinations is of course *assumed arbitrarily,* and appears in the fourth column. Thus the fifth combination, using 20 N's with 6 L's, is supposed to give 84 units of product, and the ninth combination, using 20 N's with 10 L's, to give 200 units of product.

As just indicated, the figures of the second, third, and fourth columns contain the *assumed* conditions and the *assumed* general results of our series of imaginary experiments. In contrast, the figures of the remaining columns are *derived* from the data assumed in the preceding ones. First, come the *parenthetical* figures of the

| No. of Combination | Amount of N's | Amount of L's | Output | Proportional Increase | Actual Increase | Average in N's | Average in L's | Marginal Product of L's |
|---|---|---|---|---|---|---|---|---|
| I | II | III | IV | V | | VI | VII | VIII |
| 1 | 20 | 2 | 2 | .. | .. | .1 | 1 | .. |
| 2 | 20 | 3 | 6 | (1) | 4 | .3 | 2 | 4 |
| 3 | 20 | 4 | 16 | (2) | 10 | .8 | 4 | 10 |
| 4 | 20 | 5 | 35 | (4) | 19 | 1.7 | 7 | 19 |
| 5 | 20 | 6 | 84 | (7) | 49 | 4.2 | 14 | 49 |
| 6 | 20 | 7 | 126 | (14) | 42 | 6.3 | 18 | 42 |
| 7 | 20 | 8 | 156 | (18) | 30 | 7.8 | 19.5 | 30 |
| 8 | 20 | 9 | 179 | (19.5) | 23 | 8.9 | 19.8 | 23 |
| 9 | 20 | 10 | 200 | (19.8) | 21 | 10 | 20 | 21 |
| 10 | 20 | 12 | 236 | (40) | 36 | 11.8 | 19.7 | 18 |
| 11 | 20 | 14 | 266 | (39) | 30 | 13.3 | 19 | 15 |
| 12 | 20 | 16 | 290 | (38) | 24 | 14.5 | 18.1 | 12 |
| 13 | 20 | 18 | 312 | (36) | 22 | 15.6 | 17.3 | 11 |
| 14 | 20 | 20 | 330 | (34) | 18 | 16.5 | 16.5 | 9 |
| 15 | 20 | 22.2 | 346 | (36) | 16 | 17.3 | 15.6 | 7.2 |
| 16 | 20 | 25 | 362 | (43) | 16 | 18.1 | 14.5 | 5.7 |
| 17 | 20 | 28.5 | 380 | (50) | 18 | 19 | 13.3 | 5.1 |
| 18 | 20 | 33.3 | 393 | (63) | 13 | 19.6 | 11.8 | 2.7 |
| 19 | 20 | 40 | 400 | (78) | 7 | 20 | 10 | 1 |
| 20 | 20 | 44.4 | 398 | (44) | All Decreases | 19.9 | 8.9 | All Minus Quantities |
| 21 | 20 | 50 | 393 | (50) | | 19.6 | 7.8 | |
| 22 | 20 | 57.1 | 360 | (56) | | 18 | 6.3 | |
| 23 | 20 | 66.6 | 280 | (60) | | 14 | 4.2 | |
| 24 | 20 | 80 | 140 | (56) | | 7 | 1.7 | |
| 25 | 20 | 100 | 80 | (35) | | 4 | .8 | |
| 26 | 20 | 133.3 | 40 | (26) | | 2 | .3 | |
| 27 | 20 | 200 | 20 | (20) | | 1 | .1 | |

*fifth* column. These are intended to show what the increase in output would have been if it had been *just proportional* to the increase in the number of L's. But a proportional increase means one which

just maintains the average of the last preceding combination. Thus, the average for the fourth combination is 7 units for each L, and hence, if the L of the fifth combination is to maintain the average, it must bring in seven units. Accordingly, the figure in this column for the fifth combination is 7.

The figures in this fifth column which are not in parenthesis represent the *actual* increase in output, and are, of course, obtained for any particular combination by subtracting from the total of that combination the total of the combination next preceding. Thus from the 312 output of the thirteenth combination, we subtract the 290 of the twelfth and get 22, the actual increase for the former combination, and this figure, therefore, appears in the fifth column outside the parenthesis.

The figures in the sixth column give the *average total output* for the corresponding combination *measured in N's.* Thus the figure 14.5 in this column for combination 12 means that the average output for each of the 20 N's in this combination is 14.5. That figure is of course obtained by dividing 290, the total output for this combination, by 20, the number of N's used. The figures of the seventh column similarly show *the average total output measured in L's.* Thus the 18.1 appearing in this column under this same combination means that the average output for each L is 18.1, a figure obtained by dividing the total output, 290, by 16, the number of L's in this combination.

Finally, we have in the eighth column, the *addition* to output which follows upon [4] the addition of *one* units of L's. Thus the 12 appearing in this column under the twelfth combination means that for each new L appearing in this combination, 12 more units of product appear in the output. This figure is of course obtained by dividing 24, the total amount added, by 2, the number of L's added. In the first 8 combinations the figures for this column are the same as those which appear in column 5 outside parentheses, because in each case there is but one L added, and so division by the number of L's does not alter the figure of the addition.

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[4] This must not be understood to mean that this addition is *produced solely* by the unit of L's in question.

A brief inspection of our table will show that it represents symbolically the phenomena which were set forth above as present in real life. No actual combinations of factors behave in precisely the way indicated in this table; but the general course of things is strictly regarded. We have but to follow the figures given in the fifth column to see that, for the first 9 combinations, output increases *more* than proportionally; that, for the next 10 combinations, it increases *less* than proportionally; and that, for the last 8 combinations, it *absolutely diminishes*. In short, it passes through the 3 stages through which real combinations pass. Accordingly, we can safely use the figures of this table to bring out in definite and precise form the points directly or indirectly involved in our principle.

### Illustrative Problems

1. Assume that the total output for the twelfth combination is 294 units instead of 290, and compute the figures which would result from this new assumption in the part of the fifth column not in parenthesis, and in the sixth, seventh, and eighth columns.

2. If you had at your disposal 10 N's and 8 L's, what combination would you naturally use? What one, if you had 40 N's and 32 L's? If you had 5 N's and 4 L's? 60 N's and 75 L's?

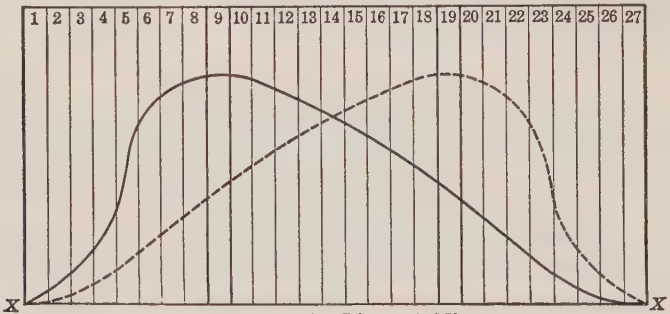
3. If you had at your disposal 60 N's and 48 L's, how much product would you naturally be getting? How much would you naturally get, if you were to put in 6 more L's? How much, if you added another 6 L's?

## III

## Changes Caused in Averages as Measured in Each of the Two Factors

**Average Measured in L's.**—The next point to be remarked concerns the changes caused in the *average* output as measured in one or the other of the factors. This is, indeed, only another way of looking at the facts already presented, but it is a way of much interest and importance. How, then, does *the average measured in L's* behave? The seventh column of our table shows that it increases up to the ninth combination, then diminishes to the end. Moreover, the table shows a perfectly definite reason why this must be so. The average output for any combination, measured in L's, is, of course,

equal to the total output for that combination divided by the number of L's used in the combination. But, if for any series of combinations the total output is increasing *more* rapidly than the number of L's, (as it is for the first 9 combinations), the quotient obtained, that is, the average, must be *increasing*. On the other hand, if for any series of combinations the total output is increasing *less* rapidly (as it is for the 10 combinations after the ninth) than the number of L's, the quotient, and so the average, must be *diminishing*. Finally, if output is diminishing absolutely while the number of L's is still increasing, the average must of course be diminishing. The average,




Averages in L's and N's

measured in L's, therefore, first *increases up to the ninth combination, then diminishes to the end.*

**Average Measured in N's.**—The behavior of the average measured in N's, as represented in the sixth column, is necessarily somewhat different. Since the total output is increasing up to, and including, the nineteenth combination, while all the time the number of N's used remains constant,—that is, since the dividend increases while the divisor remains constant—the average, measured in N's, must increase throughout this series. On the other hand, since the total diminishes after the nineteenth combination while the number of N's remains constant, the average, measured in N's, must diminish after the nineteenth to the end.

**Summary.**—Summarizing the points made above and the most immediate inferences therefrom, we have the following: First,

each average rises during a series of combinations; reaches a maximum in one particular combination; then diminishes for the remainder. Secondly, the maximum average combination is different for the two averages, being an early one for the L-average, a late one for the N-average,—a proposition which plainly follows from the conditions. In the third place, the average measured in *either* factor is bound to be an increasing one for every combination prior to the tenth; that average measured in either factor will be a diminishing one for every combination after the nineteenth; and, for the intervening combinations, the average will be a diminishing one, measured in L's, but an increasing one, measured in N's. These points are brought out graphically in the accompanying diagram, in which the continuous curve represents the averages measured in L's, while the dotted curve represents the averages measured in N's.

## IV

### Changes in Additions or Marginal Products

Another effect of attempting to increase output by increasing one of the factors concerns the *changes caused in the addition to output as measured in the addition to the changing factor.* Thus the thirteenth combination shows an increase over the preceding one of 22 *units of output,* while the *number of L's added* to make this combination was 2; and, dividing 22 by 2, we have 11, which is the number of units of product added for each of the L's added. With some show of reason, this quantity is frequently designated *the marginal product*[5] *of the L's*—that is, of the increasing factor. Anyhow, the course which it takes as we increase the quantity of L's used is of considerable importance. That course is indicated in the last column of our table. It begins at 4 in the second combination; increases to 49 in the fifth; from thence grows smaller and smaller to the nineteenth; after which it remains less than 0.

These results are inevitable so long as the relation between the increase in output and the increase in the number of L's is the exact relation assumed in our table. The addition to output for each

[5] See Note 2, Appendix.

added L is just what it is because the relation between the increase in the total output and the increase in the total number of L's is just what it is. We must not infer, however, that the *precise* course taken by the marginal additions in our table is the only one which they could take under the *general* conditions assumed, namely, the conditions that output increased more than proportionally up to the ninth combination inclusive, then less than proportionally to the nineteenth, and then diminished. The precise course taken by the marginal addition or product as a result of a change in the proportion between output and the number of L's, depends, not only on the *direction* of that change, but also on *its degree*. Thus, if the proportional increase in output had been less rapid during the earlier combinations or had fallen off less sharply in the later ones, the change from an increasing to a diminishing marginal product would have come later. Other possible variations in the behavior of the marginal product from that indicated in our table could easily be worked out arithmetically. Nevertheless, if we assume that the course taken by the output in our imaginary experiment was fairly *typical*,—and I think we may properly do so,—the course taken by the marginal product would correspond in a general way to that which it takes in our table: that is, *marginal product would increase up to a maximum coming somewhat earlier than the combination at which the increase in output became less than proportional, then diminish to the end.*

Before leaving this topic, we must emphasize one aspect of the matter just commented upon,—the fact that *the point where marginal product begins to diminish does not correspond with the point where the increase in output changes from a more than proportional to a less than proportional one*,—the latter being at the tenth combination, the former at the sixth. As already noted, this precise location of the point at which the marginal product begins to decline is not necessary for every possible case in which the increase begins to be less than proportional at the tenth combination. In other words, our experiment does *not* prove that a locating of the change in marginal product at a point earlier than that at which the change in proportionality takes place is inevitable; it does prove, however, that this is possible, if not probable. It follows that we cannot properly

treat the two phenomena as identical. The principle that the marginal product first increases, then diminishes, is not the same as the principle that output increases more than proportionally to the changing factor, then less than proportionally.[6] It should be added, however, that, generally speaking, we have no interest in marginal products prior to the ninth combination. These marginal product figures are useful chiefly in showing us whether or not it would pay to add further to the number of L's in the combination.[7] But it goes without saying that such is the case anyhow up to the ninth combination. For up to that point we are raising *both* averages by each addition of L's; and, as long as this is true, it is a matter of indifference whether or not each L adds as much as its predecessor.

## V

### Factor L Constant, Factor N Changing

In our imaginary experiment as embodied in the table, the quantity of N's was supposed to be constant while that of L's increased. What, now, would be the result were this situation to be reversed with the L's constant and the N's increasing? It would be precisely similar to that already brought out, with the places of N's and L's reversed. Output would increase at first more rapidly than the N's, then less rapidly, then actually decrease; the average measured in N's would increase up to some early combination, then diminish to the end, while the average measured in L's would increase up to some later combination, then diminish to the end; and, finally, the marginal additions, the marginal product of N's, would increase up to some combination prior to the ninth, then diminish to the end. And note that the acceptance of these statements does not depend on a new induction. *If* the points made with respect to the results which follow when N's are kept constant and L's increased are true, the analogous statements with respect to the

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[6] This comment seems necessary on account of occasional carelessness of statement on this point in the literature of our subject.

[7] Many economists hold that the marginal product is also very useful in guiding us as to the importance or significance to the producer of the factor in question.

results which follow when L's are kept constant and N's increased *must* be true. A table reversing the relations of L's and N's, in respect to both conditions and results, is directly *deducible from the table already given.* Accordingly, in so far as the doctrines set forth in the preceding discussion apply to any particular combination, they are true without regard to which of the factors is kept constant and which is increased. If they are true of a combination of land and labor in which the land is constant, they are equally true of one in which the labor is constant.

The point just made, that the principles laid down with respect to the effect of increasing one of the factors of a combination while the other remains constant are true whichever one of the factors is increased, must not be understood as implying that it is of no practical importance which factor is taken as the constant one. Some natural factors in production and many produced ones necessarily appear in large, indivisible units. They must be utilized as a whole or not at all. For example, the group of great lakes beginning with Superior and ending with Ontario—a very important factor in transportation—cannot be made smaller or larger. We must use the system as it is.

So a plant for lighting a great city or supplying it with water cannot be changed ever week or month or year. If we have to increase or diminish the amount of service obtained from factors of this type, we must for a time if possible do so by increasing the quantity of auxiliary factors used. Such increasing of the auxiliary factors is usually possible, because those factors are to be had in small or easily divisible units. While we cannot increase the size of the lakes, we can change in no great length of time the number of boats navigating those lakes. While we cannot at frequent intervals enlarge the whole lighting plant, we can readily increase the amount of labor employed or the quantity of coal consumed.

*The importance of the principles brought out in this chapter grows out of their application to cases like these in which one of the combining factors is naturally or necessarily kept constant for a shorter or longer period, while any or all of the others may be changed.*

## VI

### Output from Groups of Factors

We have noted the effect on output of increasing one of the factors of a combination when we are dealing with *single* factors. We have to add that the same phenomena appear when we are dealing with *groups* of factors over against one or more auxiliary factors. Thus, when trying to ascertain the effect on output from the aggregation of land, buildings, machinery, etc., which we call a *plant,* of increasing the amount of auxiliary factors, raw materials, fuel, labor, etc., we have the same general experience as before. For a time, the output increases more rapidly than the auxiliary factors, then less rapidly, then absolutely diminishes.

The same statement would of course apply to a *business unit* as a whole, that is, a partnership or a corporation operating one or many plants. This would be so, partly because the plants operated by the corporation would exhibit the phenomena in question and partly because the *organization side* of the business would independently exhibit these phenomena. While parts of the organization remained constant—for example, the higher officials, *one* president, *one* secretary, and *one* general manager,—other elements would be increased, and this increase would at some stages result in a more than proportional increase in output and at others in a less than proportional one.

In general, then, it is scarcely to be doubted that we have here a principle or set of principles of very wide application. In practically all cases, we may alter the proportions in which factors are combined without destroying their power to produce; but we cannot help changing their effectiveness or productivity, making them produce, proportionally, more or less. And this fact will be of importance whenever the circumstances are such that some one factor or group of factors, is *absolutely* fixed, or, for a longer or shorter period, is fixed *by special circumstances.*

# CHAPTER X

## ATTEMPTS TO INCREASE OUTPUT AND SOME ECONOMIC CONSEQUENCES

In the last chapter we explained the more immediate and chiefly technical consequences resulting when we attempt to increase the output from a factor of production by increasing the amount of the auxiliary factors employed. We must now remark on some remoter consequences,—especially some of an economic character.

### I

### Limits of the Productive Capacity of Individual Instruments

As noted in introducing our last chapter, one of the most important economic problems connected with the matter we are now studying concerns the *limits* of our productive capacity. In so far as this inquiry has to do with the individual instrument, the most valuable conclusions of our study are these two: (1) There is an absolute limit to the amount obtainable from any instrument, and (2) before that absolute limit is reached, there is a stage during which the increase in output is less than proportional to the increase in the quantity of auxiliary factors. On account of its great importance, the second of these ought, perhaps, to be given the emphasis derivable from its statement as a formal principle. This principle is commonly known as the Law of Diminishing Returns.

**Principle**—The Law of Diminishing Returns.

*If attempts are made to increase indefinitely the output of any factor of production by increasing the quantity of auxiliary factors used, a time will come, before the absolute limit is reached, when, though there continues to be an increase in output, that increase is less than proportional to the increase in the quantity of assisting factors added.*

We must now add a word about certain *technical phrases* used in connection with the principle just stated: When the utilization of any instrument of production has been carried up to the combination which will yield only a smaller proportional return, it is said to have been worked or utilized to *"the point of diminishing returns."* A step further takes it *beyond* the point of diminishing returns or *into the stage* of diminishing returns. As the utilization of any instrument is carried further and further into the stage of diminishing returns, it is said to be worked (cultivated in the case of land) *"intensively"* or *"more intensively."* Another method of expressing the same idea is to say that *"the margin of cultivation* (utilization) *is lowered"* or *"pushed down."*

The discussion leading up to the above statement of the principle of diminishing returns has, perhaps, insured its *correct interpretation.* In view, however, of numerous misunderstandings which have appeared in economic controversy, it seems best to indicate specifically certain misinterpretations which need to be guarded against. First, the "returns" referred to in the designation "diminishing returns" are *physical* returns,—product, not money or profits. The principle means that by increasing the amount of labor we can increase, though less than proportionally, the *potatoes* raised on a given piece of ground, or the *heat* given out by a furnace, or the *freight* carried by a railway, and so on.

In order to emphasize this point, I like to call our principle the Law of Diminishing *Output,* thus avoiding the ambiguity attaching to the word "returns."

Another misunderstanding confuses the principle now under discussion with one which says that there comes a stage in the production of goods when product can be increased only at *increasing cost.* This statement is without doubt true; but, as will be brought out in the next chapter, the condition indicated is not identical with the one meant when we say that we have reached the stage of diminishing returns.

Another troublesome misunderstanding interprets our principle to mean that output could never be increased at a proportional rate whatever might happen, *however much improvement in the productive arts might take place.* This, of course, is a quite illegiti-

mate interpretation. A natural law in Economics, just as in Chemistry or Physics or Biology, *assumes the continuity of conditions other than the one or more which the principle itself represents as changing.* Doubtless any person is at liberty to affirm a principle analogous to the one here considered in a *dynamic* sense, as we sometimes say, that is, as *certain to prove true despite changing conditions.* But most prudent people will hesitate to do so; and anyhow, unless this is expressly indicated, the affirmation is always made subject to the condition that no changes are to take place except the one specified in the principle itself, namely, an increase in the quantity of the changing factor.

### Illustrative Problem

"Malthus was quite wrong when he tried to show that at life's banquet there was room for only a limited number of guests. The guests are also cooks, contributing their share of the banquet."—Dr. Bertillon in a lecture in Paris in 1913.

Criticize this statement of Bertillon on the basis of the law of diminishing returns.

## II

## Elasticity of the Limit Set by the Law of Diminishing Returns

In our formulation of the Law of Diminishing Returns, and too often in our interpretation of that law, all emphasis is laid on the fact that it acts as a *check on output,—sets a limit* to output. Only a very little thought makes it clear that this principle has another side. It is true that output does not increase proportionally to the increase in auxiliary factors; but then *output does increase.* If we have reached the stage of diminishing returns in the utilization of any instrument of production, we cannot get any more product out of it at the same rate as before; but we *can get some more.* In fact, our principle might with very good reason be named the Principle of Output Increasable at a Diminishing Rate. Such a designation recognizes equally the fact that output can be increased and the fact, also, that the increase will be less than proportional.

### Illustrative Problem

The law of diminishing returns is a reason why the price of wheat is lower than it might be, and, at the same time, is a reason why the price of wheat is higher than it might be. Explain the seeming contradiction.

## III

### All Divisible Factors Usually Being Worked in the Stage of Diminishing Returns

We have seen that most economic factors are subject to the law of diminishing returns in the sense that, in trying to utilize them more and more fully, a time will come when such attempts will increase product, but increase it less than proportionally. We now have to add that, *under normal conditions, the utilization of any divisible factor must have been carried into this stage,—producers must be working it in some combination beyond the point of diminishing returns.* In terms of our table, any such instrument will at all times be working in some combination later than the ninth and earlier than the nineteenth.

The general argument on which the above statement is based is as follows:

All combinations earlier or later than those indicated are excluded as being for one reason or another illegitimate. First, all combinations coming after the nineteenth must be excluded, since the additions to the changing factor which make up these combinations *reduce the total,*—a result which can be avoided by the simple expedient of not making those additions. Secondly, all combinations from the first to the eighth inclusive must be excluded; since, under our hypothesis that the factor under consideration is divisible, we could transform any one of these early combinations into the ninth by the simple expedient of discarding some of the N's, and, in doing this, would increase our total. Thus, the seventh combination, 20 N's with 8 L's, could be transformed into the ninth by discarding 4 of the N's, making the combination 16 N's with 8 L's,—the same 2 to 1 ratio as that of the ninth. But this combination would give

us 8 times 20 or 160 units of product, whereas the original combination of 20 N's with 8 L's would give us only 156 units.

We have seen that, under normal conditions, no divisible factor would be used in any combination later than the nineteenth nor earlier than the ninth. That is, the actual, effective working of any factor would be limited to some one of the 11 combinations from the ninth to the nineteenth inclusive. But we must narrow still further the range of reasonable, and so actual, combinations. *Another* element necessarily comes in to determine what ones are possible, namely, *cost of production.* If N's could be had in unlimited abundance for nothing, while L's had a price however small, the ninth combination would plainly be the most desirable, since it gives the highest average measured in L's, and so, when the price of the L's constituted the only cost, the cost in this combination would be lowest.[1]

On the other hand, if N's had a price, but L's none, the nineteenth combination would be the cheapest, and, so, the most desirable of all. But, in real life, both N's and L's will have some cost, else they would not be economic factors at all. Further, there will not often be such a difference between their costs that either is negligible in the total cost. It follows that, if both factors are divisible, *the truly legitimate combination will normally be one which comes later than the ninth and earlier than the nineteenth.*

Assuming reasonable conduct on the part of producers, they will be using any factor in some one of the combinations indicated,—the combinations lying between the ninth and the nineteenth. But any one of these is bound to be a diminishing-returns combination, that is, one holding such a position that, if we try to increase output by increasing the quantity of auxiliary factors, we shall effect some increase but an increase which is less than proportional to the increase in auxiliary factors. We conclude, then, that, *in actual life, we should expect to find any divisible factor being worked in the condition of diminishing returns.*

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[1] This would be true even if N's had a price, but one which was insignificant as compared with that of L's.

## IV

### Indivisible Factors May Be Working in the Stage of Increasing Returns

We have just seen that divisible factors will normally be used in the condition of diminishing returns, because on account of the divisibility of the factor which was kept constant in our experiments, we could always change to a later combination, and would do so if this was desirable. But, when we come to deal with indivisible or large-unit factors, the problem is greatly altered. Just because the given factor is indivisible, we cannot adapt it promptly to every change in the need for product. Thus, it is plain that we cannot change our furnace every time the weather changes, substituting a larger one if more heat is needed or a smaller one if less heat is needed. What we have to do is to run the one we have *harder or easier,*—put in coal oftener or less often. An obvious result of this situation is that, if the weather gets warmer, we may be obliged to run the furnace so low that it is being worked in some stage prior to the ninth, say the seventh or the fourth. This of course is uneconomical: we get much less heat per pound of coal than we might if our plant were adapted to just the need of the moment. But we have no choice. We must install a furnace large enough to meet the need of really cold weather; and yet, on a moderate day, we must not work it hard enough to make the house uninhabitable. It follows, then, that *we may find any indivisible factor being used in the stage of increasing returns,* output increasable at an increasing rate.

What we have just said of the furnace applies as well to any large natural factor, for example, the lake system used for illustration on page 134. Such a factor may be working in the condition of increasing returns or in that of diminishing returns. Which it will be depends entirely on the existing need for the services of the factor. We have no choice in the matter. We have to use it as it is whether the need be great or small. For a long period while population was small, this vast system of waterways could be utilized only in some inferior combination, some one earlier than

our ninth. With the increase of population during the last fifty years, it probably has passed into some combination later than the ninth.

The case of indivisible, large-unit factors of the *producible* sort is, naturally enough, different. *We have some control* of the situation in that, when *constructing* such instruments, we *can adapt them* to a particular output,—make them of the proper size to supply this output most cheaply. But, as a matter of course, they will be called on to supply different volumes of output at different times. Naturally, the volume for which they will be planned will be that one which is expected to be normal. They will, therefore, be built on a scale which enables them to supply this normal output when working in the combination showing least cost.[2] It follows that, *under normal conditions,* such indivisible producible factors will be working in that particular combination lying between the ninth and the nineteenth which shows *least cost.* If, however, the demand is abnormally large, they will be pushed into some later combination; while, on the other hand, if it is abnormally small, they will be brought back into some combination lying between the least-cost one and the ninth, or, even, into one earlier than the ninth.

### Illustrative Problem

In what stage, as respects returns, would you expect to find an automobile plant working during an industrial depression? After business had revived? When a boom was on?

## V

## The Diminishing Marginal Significance of Factors

One more important fact which in part anyhow grows out of our effort to increase output by increasing the quantity of the auxiliary factor used, is suggested by the title of this section: "The Diminishing Marginal Significance of Factors." In general the different units of any particular kind of factor can be put to uses *having*

[2] They will probably be built on a *little larger* scale than this in anticipation of increasing need.

*different degrees of importance or significance.* When such uses are wholly distinct, this proposition is evident enough. Thus, in time of war, the food supplied to the soldiers in the field plays a more important role than that destined for the ordinary civilian; and the steel used in making ammunition is more significant than that devoted to making pleasure cars. Even if the different uses have to do with one product, the case is scarcely less plain. Thus, the steel used in the corn farmer's plow is more important than that used in his spring-toothed harrow; without the former he could scarcely farm at all, the latter he might dispense with rather easily. Finally, different uses of the same factor differ in importance or significance even when the factor is operating in just the same way. Thus, if, under similar conditions, a cultivator goes over a cornfield several times, the importance of the service it renders will be smaller as the number of times increases. This, manifestly, is merely a special application of the principle of *diminishing marginal productivity* brought out in the preceding chapter.

But, not only may the different uses to which a given factor is put vary greatly in importance or significance, among these different significances there is one which plays a much more important role than the rest. That one is *the smallest* or *least* of them all. Thus, if we have steel enough so that we can afford to use it for both the plow and the spring-toothed harrow, the significance of the steel used in the harrow will play a more important part than will the significance of the steel used in the plow. The former rather than the latter will determine the estimate we put on the importance of the amount of steel necessary to make a plow or a harrow.[3] The reason is not far to seek. Our estimate of the importance of anything—in this case the quantity of steel necessary to make either a plow or a harrow—depends on *how much loss we* should experience if we had to give it up. But, if we had to give up either the plow or the harrow, the one chosen for the sacrifice would, of course, be the harrow, the less important of the two. The significance lost to us, therefore, would be the lesser significance; and, hence, the

[3] As we shall learn later, this estimate will have a part in determining the value or price of steel.

estimate which we make of the importance of steel would be determined by the lesser significance. Broadening the statement so as to cover the whole stock of steel, we say that *the estimate we make of the importance of steel would be determined by its significance in the least important use,—its least significance.*

This least significance of any factor which is of much importance in economics, we designate its *marginal significance.* The designation signifies that this particular significance is located at the boundary line separating the significances which are *realized* from those which are not.

We have seen that the different significances of any factor are quite unequal, and that one of these, the marginal significance, is of great moment in economic matters. We must now add a proposition which we will call the Law of Diminishing Marginal Significance.

**Principle**—The Law of Diminishing Marginal Significance.

*Generally speaking, the marginal significance of any factor tends to diminish as the quantity of that factor available increases.*

The marginal significance of a particular kind of land will be much smaller if there are millions of acres of such land available than it would be if there were only hundreds. As between different kinds of land, the marginal significance of the kind of which there are only hundreds of acres will very likely be greater than the marginal significance of a kind of which there are millions of acres, even though the generic significance of the latter kind is much greater.

That things are bound to work in a way to make the above proposition true is easily seen. Assuming the general rationality of business conduct, the uses to which any factor has not as yet been put will be less significant than those to which it has been put. It follows that, if new supplies of that factor are forthcoming, they can be utilized only by assigning them to uses which have less significance than those already provided for. Hence the principle.

## Illustrative Problem

Assuming that laborers of any class tend to get a price for their services—wages—representing substantially the marginal importance of their type of service, show that you would naturally expect restrictions on immigration to raise wages in the United States.

# CHAPTER XI

## INCREASE IN OUTPUT AND COST OF PRODUCTION

A very important topic closely connected with the one which has occupied the last two chapters is *the effect on cost of production caused by attempts to increase the volume of output.* This problem really breaks into two parts: (1) what will be the effect on cost of trying to increase output from *a particular instrument* or group of instruments fixed in amount, and (2) what will be the effect on cost of trying to increase the output from *a particular industry as a whole,* with no restriction on the quantity of any instrument or factor. We begin with the former of these problems.

### I

### The Effect on Cost of Trying to Increase Output from a Particular Instrument or Set of Instruments Fixed in Amount

Interpreted as asking what will be the effect on cost of trying to increase output from a single instrument or set of instruments fixed in amount, our new problem is very close to that treated in Chapter IX. In fact, if we mean by cost only the expenditure for the factor which increases, the two problems are one, looked at from slightly different points of view. Under the conditions named, to say that a plant or a business is in the condition of diminishing returns would amount to the same thing as to say that it is in the condition of increasing cost. But, in actual business, we have usually no interest in particular factors unless they are *economic ones,* that is, unless they are factors having prices. We have, therefore, to remember that in the real world we shall have to pay for N's as well as for L's. The total cost, therefore, will not change merely with the change in output as measured in L's; it is bound to be influenced by the changes in output as measured in N's also.

But, though different, the two problems are very closely connected; and the solution of the one treated in Chapter IX plays a large part in the solution of the new one.

Our first task is to consider the effect on cost of trying to increase output from *simple combinations* like those made up of our N's and L's. The solution is not difficult, though the explanation must be followed with some care. First, the cost per unit of product for any particular combination must equal the cost per unit measured in N's plus the cost per unit measured in L's. For example, if in a given combination the average output measured in N's is 10 units and each N costs $1, so that the cost of each unit measured in N's is $1 over 10 or 10 cents, and, if that same output measured in L's gives 20 units per each L while each L costs $1, so that the cost of each unit of product measured in L's is $1 over 20 or 5 cents, then, the total cost of each unit of product must be 10 cents plus 5 cents, or 15 cents.

Secondly, the cost per unit measured in either N's or L's must increase as the average output measured in that factor diminishes, and must diminish as the average measured in that factor increases. For example, if the average output in N's increases from 10 to 20 units, when each N costs $1, then the cost per unit, measured in N's, falls from 10 cents to 5 cents. On the other hand, if the average measured in N's diminishes from 20 to 10, the cost of each N being $1, the average cost, measured in N's, rises from 5 cents to 10 cents.

**Cost Measured in Each Factor.**—Again, since the average measured in N's is increasing from the second combination to the nineteenth, while that average diminishes from the twentieth on, *the cost, measured in N's, must decline from the second to the nineteenth combination and must increase from the twentieth on.* On the other hand, since the average, measured in L's, increases up to the ninth combination and then diminishes to the end, *the cost, measured in L's, must diminish up to the ninth combination and thereafter increase to the end.* Further, since the increase in the average measured in N's is rapid during the first few combinations after the ninth, and becomes slow as we approach combination 19, the cost in N's declines rapidly during the earlier combinations after

the ninth and slowly during the later ones. In like manner, the cost in L's, though increasing up to the nineteenth combination, does this slowly during the earlier combinations after 9, speeding up as we approach the turning point at 19.

**Cost Measured in Both Factors.**—The last two paragraphs have shown us the course followed by the cost of production as measured in one or the other of the factors taken separately. It is now easy to see how the *total* cost per unit, that is, the cost measured in *both* factors must behave. Since cost, measured in either factor, diminishes *up to the ninth* combination, the average of the total cost must diminish up to that same combination. Again, since the average cost, measured in *either* factor, increases *after the nineteenth*, the average of the total cost must increase after the nineteenth. This statement disposes of the first and last 8 combinations. What, now, is to be said with respect to the remaining 11? First, in so far as the cost for any one of these is influenced by the cost measured in N's, that cost will tend to *diminish* clear *up to the nineteenth* combination, since the cost measured in N's diminishes up to that combination.

On the other hand, in so far as the average of the total cost is being influenced by the cost measured in L's, it will tend to *increase from the ninth* combination on, since the cost measured in L's increases from that point. That is, we have here two opposing tendencies, a downward one due to the influence of N's and an upward one due to that of L's.

But, again, the opposing pulls of N's and L's are not uniform throughout their course.[1] Instead, the *upward* pull on costs exercised by L's is relatively *small* in the earlier combinations after 9, but *rapidly increases* as we approach 19. So likewise, the *downward* pull of N's is *great* in the earlier combinations after 9 but *weakens* as we approach combination 19. From these facts it follows that the general trend of the total average is *downward* during the earlier combinations, *upward* during the later ones. But,

[1] If they were, the resultant tendency might be a constant cost between the ninth and nineteenth combinations, or it might be a least cost at the ninth or a least cost at the nineteenth.

since there must be a turning-point between these two opposite trends, one or at most two [2] of the combinations must show a lower cost than the others, a *least cost*. In short, for any particular pair of prices for N's and L's, we are bound to have results like this: (1) during a shorter or longer series of combinations, cost will decline; then (2) a least-cost combination [3] will appear; and (3) during a longer or shorter series, cost will increase.

**The Least-Cost Combination.**—What, now, is to be said with respect to the location of the least-cost combination? In general, this must depend on *the relative prices of N's and L's*. As we have already seen, the influence of N's must tend to lower cost with every movement toward combination 19, while the influence of L's must tend to lower cost with every movement from 19 toward 9. It follows that the least-cost point will tend to move toward 19 under the influence of N's and toward 9 under the influence of L's.

Which of these opposing forces will outweigh the other depends upon their relative magnitude, that is, the relative magnitude of the prices which the producer has to pay for N's and L's. If N's are very costly, this will tend to push the least-cost point toward the nineteenth combination, and *vice versa*. If, for example, N's cost $1 each and L's 40 cents each, the seventeenth combination will be the cheapest; while, if N's cost 20 cents and L's $1, the eleventh combination will occupy this place.

**Least Cost and Diminishing Returns.**—The foregoing discussion would seem to clear up pretty fully the problem of cost as affected by changes in combining proportions. Before going on, however, we ought, perhaps, to *contrast this problem of changing costs with that of changes in output as affected by changes in combining proportions*. As we have seen, the principle that output tends

[2] When, through the falling of the price of L's, the point of least cost is about to pass from one combination to the next lower, one particular price for L's will make cost in the two combinations just the same, though a slight decline in that price would move that point into the later combination and a slight advance would put it back into the earlier one.

[3] Or pair of combinations.

to increase less than proportionally is the same as the proposition that cost tends to increase, *only on condition that we are measuring cost in the changing factor.* This point, brought out more sharply now that we are clear as to the behavior of total cost, means that *the turning-point from the preceding stage to the one under consideration occurs in a different combination in the two cases.* For example, in our series of supposed combinations, the *output* is increasing more than proportionally up to combination 9, after which it increases as far as combination 19 less than proportionally; that is, for output, the ninth combination is the turning-point. As we have just seen, however, the turning-point for *cost* is practically always a combination *later than the ninth.* If we suppose the price of each of the factors to be just $1, the turning-point, the least-cost combination, proves to be combination 14. Further, as was fully explained, this turning-point varies with every considerable change in the relative prices of the two factors. In short, instead of being at the same combination as the one at which diminishing returns sets in, it almost never occupies this place, and it may theoretically be in any one of the 11 combinations from the ninth to the nineteenth, inclusive. This point needs some emphasis, because not a few writers have carelessly identified the principle that, after a certain point, the proportional returns diminish, with the principle that, after a certain combination is reached, cost of production begins to increase.

We may add, as an application of the distinction between these two principles that in any particular case of the utilization of a factor of production, we may have passed the point of diminishing returns and yet not have reached the point of increasing cost. For example, if our N's represent a furnace used in the heating of a house, and if the combination which gave out the largest amount of heat per unit of cost was the 13th, then, if we were actually using the furnace in the 11th, we should be using it in a stage earlier than the least-cost stage, but not earlier than the diminishing-return stage. If, however, the day was very mild and we were using the furnace in the seventh combination, we should be working it in a stage which was earlier than the diminishing-return one as well as earlier than the least-cost one.

### Illustrative Problem

It is possible to be using a railroad plant in such a condition that, if we could increase the traffic a certain amount, we could increase the return per unit of the assisting factors, and so diminish the cost. But we might also be working that plant under such conditions that, though we could no longer increase the return per unit by increasing traffic, we could, after all, diminish the cost of production.

Explain how this could be.

**Least Cost Seldom Realized.**—One other point needs a moment's comment before leaving this matter of least cost. At first thought we might suppose that, in using any group of factors, we should always put them together in the proportions giving the least-cost combination. As a matter of fact, however, we should rather seldom be able to do this. In almost all situations we have a body of factors which are relatively fixed over against a set which are constantly changing in quantity, the former being designated *fixed* capital, the latter *circulating* capital.[4] Now, in the nature of things, the former cannot be nicely adjusted to every change in the volume of output. Any plant will naturally be planned and built on such a scale that, when supplying its normal output, it will be working in the least-cost combination.[5] But when a volume of output smaller or greater than this is temporarily called for, it will become necessary to work the plant in a combination earlier or later than the least-cost one. That is, it may be necessary and proper, much of the time, to be working a plant in the diminishing-cost stage or the increasing-cost stage, rather than in the least-cost stage. This of course requires that the price of the product should be high enough to justify the producer in using a combination more expensive than the least-cost one.

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[4] Costs growing out of fixed capital are often called *overhead* costs, those connected with circulating capital are called *prime* or *out-of-pocket* costs.

[5] This statement needs qualification because of the fact that it will usually be thought best to plan for *future growth* of demand; so that the plant will more usually be built on such a scale that, for a time, it will normally be working in a stage somewhat earlier than the least-cost stage.

What has been said of a plant can with equal truth be said of a *business unit as a whole.* Here, as before, the plant or group of plants run by the concern will sometimes be working in a stage *earlier* than the least-cost combination, or just *at* that combination, or *later,*—in the first case, being in the condition of *diminishing cost,* in the second and third cases being in the condition of *increasing cost.* In addition, similar statements may be true with respect to the *organization* side of the business unit or company. The force of general officers, and of departmental superintendents, may be working in a condition of diminishing cost or one of increasing cost.

Finally, it would seem that the propositions which have been laid down with respect to single instruments, plants, and business units, may be affirmed with respect to social groups, districts, countries, even the world. Broadly speaking, any one of these totalities may at any moment be in such a condition that an effort to increase the aggregate of economic goods in order to satisfy the needs of a larger population would result in a diminishing expenditure of our resources per unit of product, or just the reverse. In the former case, the community under consideration would not have carried the utilization of its outfit of natural resources to the least-cost combination, though it might have carried that utilization beyond the point of diminishing returns. And an increase in population calling for a larger output of products and furnishing a larger supply of human productive power would enable the community to carry the utilization of its natural resources into a less costly and so more desirable stage. If, however, the community had already reached or even passed beyond the least-cost stage, the increase in population could only result in driving the industry *into,* or *further* into, the stage of increasing cost, and so, from our present point of view, could only result in harm.

## Illustrative Problems

1. If the demand for a certain manufactured commodity is very small indeed, the cost per unit is likely to be larger than it might be. If the demand for that commodity becomes enormously great, the cost is again likely to be larger than it might be. Explain how both these statements can be true.

2. "I am disposed to think that, up to 1900 anyhow, the United States was under- rather than over-populated."

Explain how this could be.

## II

### The Effect on Cost of Trying to Increase the Output from an Industry as a Whole, There Being No Restriction on the Quantity of Any Instrument Used

We now pass to the second phase of our problem—the effect on cost of trying to increase the output from an *industry as a whole.* What will happen to cost, if we try to get more copper from the copper industry, or more wheat from the wheat industry, or more automobiles from the automobile industry? Will the cost per unit remain the same as before or become larger or smaller than before? This question, like our original one, breaks into two. (1) What will be the *immediate* effect on cost in a given case? In other words, in what stage is an industry at this moment, diminishing cost, constant cost, or increasing cost? (2) What will *normally* be the effect in a given industry? What effect is *characteristic* of that industry? In which of the three stages is that industry likely to be most of the time?

**Theory of Cost Variation.**—In order to answer these questions even briefly, we need to have in mind the principal causes which tend to affect the cost of production as output is increased. Of these there are three. The first cause to be considered is *the condition of the durable instruments already being used* in the industry in question. Are those instruments being worked in the stage of diminishing cost, or minimum cost, or increasing cost? Their condition in this respect, in so far as they are able to influence the matter at all, will obviously tend to establish a like condition for the industry as a whole. A second cause affecting cost is *the degree of difficulty experienced in duplicating the instruments* employed in an industry. Will the new machines, the new labor, and the new land needed to expand output cost the same as, or more or less than, our present stock cost us? The third cause is *the degree*

*to which the industry is able to realize the advantages of large-scale production* set forth in an earlier chapter. The possibility of using large-scale methods must of course tend to put the industry into the condition of diminishing cost; and the extent to which these methods can be used must determine largely how potent they will prove.

Now, when we ask concerning the immediate condition of an industry, the potency of these three causes above enumerated depends chiefly on two considerations: (1) the state of industry in general, and (2) the nature of the particular industry involved.

First, to begin with the former of these two considerations, any particular industry is likely to be in the condition of diminishing cost when business is depressed, in that of increasing cost when business is booming, and in that of constant cost when business is in a state lying between these extremes. The reasons are evident. The depression means that demand for products is small and prices are low. In consequence, an attempt to increase output in response to increasing demand would find the situation advantageous in respect to each of the three causes enumerated above. First, the fixed capital of the industry would be working in a condition of low efficiency or high cost, and the expansion of output would enable producers to utilize that fixed capital in a more efficient, less costly stage. Again, the low prices of a period of depression would make the factors necessary for expansion more than ordinarily cheap. Finally, the increase in output would open the way for a fuller utilization of large-scale methods. All this would obviously be reversed at the height of a boom. Fixed capital would be working beyond the point of highest efficiency; the cost of factors would be very high; the advantages of large-scale methods would already have been utilized to the full. Finally, in the period between these extremes, these opposing tendencies would come to something like an equilibrium in which expansion of output brought neither less nor greater but the same cost.

But, again, the effects produced by our three causes would be influenced by *the nature of the industry in question.* The influence of the possibility of getting more services out of fixed capital, of carrying that capital forward to the point of minimum cost, would signify little in the case of an industry which used little of this type of capital, —say retail trade—but much in an industry such as mines and steel

mills, which used a great deal. Similar differences would show in the influence exerted by the cost of the factors necessary to expansion. The industries utilizing a large amount of fixed capital and a relatively small amount of new factors would naturally be less affected by the increase in cost of the latter. The smaller the out-of-pocket expenses, the smaller the significance of this element. Thus, farming is not affected as favorably as many other lines of industry by the low prices of supplies prevailing in a period of depression nor as unfavorably by the high prices of those supplies characteristic of the top of a boom. Finally, the power to utilize the advantages of large-scale production varies greatly in different industries. In farming, for example, that power is proverbially low. The necessary operations are very diversified and there is little repetition of operations which duplicate one another; the fundamental factor in this industry, the land, is also diverse in character, one part of a farm being fit for one purpose and another fit for another purpose; and, finally, the necessity for rotation of crops compels frequent changes in product and method. All these causes, taken together, make high specialization in agriculture imprudent where it is not impossible. Accordingly this industry and others of a similar kind are less influenced in respect to costs by the general business situation. Their variation in cost as output expands is less considerable than in the other cases.

**Characteristic Tendency.**—The foregoing discussion has in a large measure anticipated what we need to say concerning our second question: what is the *normal* tendency of cost in a particular industry as output is expanded, or what tendency is *characteristic* of that industry? The answer manifestly has little relation to temporary business conditions, being almost entirely a matter of the *nature of the business itself*.

The significance of the first of our three causes—the condition of the durable instruments already being used in the industry under consideration—is obviously dependent on the extent to which such instruments are commonly employed in that industry. As compared with railway transportation, farming makes relatively small use of durable instruments,—fixed capital. Naturally, then, the presence

of unused capacities in its durable instruments will be of much less potency to hinder farming from being in the condition of increasing cost, than it would be to keep railway transportation out of that condition. This cause, however, is apparently less effective in fixing the character of an industry than the next one to be mentioned.

As respects the influence of the second cause—the difficulty experienced in duplicating instruments—this naturally turns on the extent to which the industry in question is *dependent on natural factors.* Those factors are absolutely limited in amount, instead of being susceptible of increase like capital and labor services. If, then, they form a *very large part* of the necessary equipment of a given industry, for example, stock-raising, that industry will naturally pass into the condition of increasing cost sooner than one of which this is not true, for example, the manufacture of textiles. It follows from the above considerations that the extractive and agricultural industries are much more likely to be in the condition of increasing cost than manufacture or commerce. The narrower the field from which the natural factors can be drawn, the greater force will this cause exert. It will be felt much more in the producing of citrous fruit than in the producing of wheat and potatoes; more in platinum mining than in copper mining; more in copper mining than in iron mining.

Finally, as to the influence of the third cause, an industry that consists largely of many similar or identical operations, and can therefore apply methods of large-scale production, will tend to be in a condition of constant cost, or even of diminishing cost. Manufactures are conspicuously of this type, and agriculture conspicuously not.

Looking back over this discussion, we see that all the different causes combine to hinder manufacturing from being in the condition of increasing cost, and to keep it in a condition of constant or diminishing cost. The manufacturing plant ordinarily has a large store of unused utilities; it depends relatively little on natural resources; and it is well adapted for the employment of large-scale methods. On the other hand, agriculture tends just as strongly, under the influence of all these causes, to be in a condition of *increasing cost.* It will seldom have any great volume of unused utilities to put it into the condition of diminishing cost; the natural factors play a large part

in its operation; and the chance of employing large-scale methods is very slight. In the mining or extractive industries the result is much the same although the operation of the different causes is a little different. The mining industries make extensive use of fixed capital, hoisting machinery, machinery for crushing the rocks, facilities for transportation, etc. On this score we might be led to think of these industries as diminishing-cost industries or even constant-cost. And in fact when a new grade of mine has become available by a rise in price the industry is likely to be temporarily in the condition of constant cost. That is, it will be possible for a time to expand output far beyond the expansion of demand without any new increase in cost. This particular element, mining has in common with manufacture. Nevertheless, the former industry naturally shows in general the same tendency as agriculture because of the influence of the second cause which we originally named. That is, the dependence upon natural factors is so great that the relative difficulty of obtaining these factors in the productive process offsets the advantage derived from the former element.

We have just seen that the prevailing or normal tendency of the extractive and agricultural industries is to be in the condition of increasing cost; while that of the manufacturing industries is to be in the condition of constant cost. Not unnaturally economists are wont to *classify the former as increasing-cost, the latter as constant-cost, industries.* Further, as will appear in a later connection, this distinction among industries is of great importance in connection with the determining of price. A firm grasp upon the distinction is therefore of much importance. Remember, however, that in using this classification the economist does not mean to imply that an industry of either type is always and necessarily in the class indicated, but only that this is, in general, its proper classification. At times, it may be temporarily in the other class.

**Summary.**—Summarizing the chief results of the preceding discussion we may set forth in conclusion the following propositions:

(1) Any industry may be at some time or other in each one of these three stages: diminishing cost, constant cost, and increasing cost.

(2) Most industries are likely to be in the condition of diminishing cost if the demand for their product is so small that an increase in that demand would enable the industry to pass from small-scale to large-scale methods.

(3) Most industries may be for considerable periods in the condition of constant cost whether their general classification is in diminishing cost or increasing cost, because of the fact that at any particular level of cost there is possible an increase in output which is very large as compared with the expansion of demand.

(4) Practically all industries must some time reach the stage of increasing cost.

(5) In general the agricultural and extractive industries naturally classify as increasing-cost industries.

(6) In general manufacturing industries classify as constant-cost industries.

## Illustrative Problems

1. "Taken by and large, the mining of copper is probably an increasing-cost industry." Defend that statement.

2. Argue for the reasonableness of the proposition that, if the marginal cost of producing copper should rise from, say, 20 to 25 cents per pound, at the latter figure this industry would probably be for a time a constant-cost industry.

3. Give some reasons for believing that railway transportation is likely to be much of the time in the condition of diminishing cost.

4. An industry like the making of surgical instruments is likely to be in what condition as respects the relation between cost and volume of output? Explain.

5. Suppose that, while competition in the industry is still maintained, the conditions of production for a particular type of wooden chair are such that, if fewer than 1,000 chairs a year are produced, the cost per chair will be about $3; that, if output is between 1,000 and 20,000, cost will be about $2; that if it is between 20,000 and 50,000, cost will be $1; if between 50,000 and 500,000, 50 cents; if between 500,000 and 2 millions, 30 cents; if between 2 millions and 3 millions, 40 cents; if between 3 and 4 millions, 55 cents; if between 4 and 5 millions, 75 cents; if between 5 and 6 millions, $1.25; and so on.

(a) Suppose that in the year 1918, 700,000 of these chairs are produced; that by 1920 the output has increased to 1,300,000; that by 1925 the amount is 1,600,000; and that by 1940 it is 1,800,000. To what class of goods would these chairs belong during the period of 1918 to 1940, looked at as a whole?

(b) Suppose that between 1950 and 2000 the output should increase from 2,300,000 to 6 millions. To what class of goods would these chairs belong during that 50 years, looked at as a whole?

6. During the great boom in the prices of farm products characteristic of the war period, farmers who heard comments by other classes on the point were wont to say: "But look what prices we have to pay for all sorts of supplies, seed, fertilizer, binding twine, labor, etc. This increase in costs makes big prices necessary." Criticize that reasoning.

# CHAPTER XII

## MONEY EXCHANGE

With the present chapter we begin the study of what has often been treated as one of the main divisions of economics, namely, Exchange, a division of our subject which, broadly interpreted, includes nearly all the most important topics of the science. The starting point of this study is found in the fact already emphasized in our first account of the present economic order that, under that order, we obtain the goods which are necessary to the satisfying of our wants and which, generally speaking, have to be produced, not by producing those goods ourselves, but by devoting ourselves to producing something which our neighbors want and using these to get from others through exchange the goods which we need. It follows that exchange is the very central, pivotal, fact in our whole economic order; every other fact and circumstance is directly or indirectly affected by it; and every aspect of the exchange phenomenon may therefore reasonably be expected to repay the most careful inquiry.

The most important topic naturally included under the division, Exchange, is *value and price* in their various aspects, their nature, function, the principles or natural laws determining them, etc. Our first duty, however, will be to give some account of *the more concrete side of exchange,* at least of those aspects of exchange with respect to which there is need for more information than is commonly possessed by the student when beginning the study of economics. Of these matters, the first one taken up in this and the next chapter following is the *mediation of exchange,* the effecting of exchange through a middle term. From this standpoint we distinguish two principal exchange processes: (1) Money Exchange and (2) Credit Exchange. In the present chapter we take up the former—Money Exchange.

## I

## The Nature of Money Exchange

**Inconveniences of Barter.**—Although the facts of money exchange are familiar enough to everyone, their essential nature and the causes lying back of them demand a moment's examination. The beginnings of exchange, as found in primitive societies, have always taken the form of *barter—the direct exchanging of goods for goods.* A man who has grain to spare and wants a canoe, gets into communication with a neighbor who has canoes to spare and wants grain, and a mutual transfer is effected. But this method, even in the most favoring conditions, is highly inconvenient. The man who has produced a surplus of grain which he wishes to exchange for a canoe is obliged first to seek out someone who has a canoe to dispose of and at the same time needs grain and who, further, needs grain in an amount exactly corresponding to the value of the canoe.

But this necessary coincidence between exchangers as respects the kinds and amounts of goods wanted and offered can exist but rarely, and, where it does exist, can be discovered only after laborious searching. It would not be hard to find men who want grain; but they may have no canoes to dispose of. So, it would be fairly easy to find men who have canoes to sell; but they may not want grain; or, if any one of them does want grain, he may want only half as much as would be needed to pay for a canoe. As civilization advances these obstacles to barter become more and more serious. Occupations, tastes, and incomes grow more diverse, and a larger and larger number of workers produce things which, being unfitted to satisfy their own wants, must be exchanged, but which at the same time are wanted by only a few other individuals, and those perhaps widely scattered. For such persons—that is, for most of us—exchanging their own products directly for all the different kinds of goods they require would be entirely out of the question. For a manufacturer of steel rails or mowing machines or microscopes or surgical implements to go about trying to obtain, in trade for these wares, sugar or flour or a suit of clothes, would be not merely inconvenient but futile.

**Mediated Exchange.**—But no highly developed society tries, or ever did try for long, to conduct its exchange on the barter plan. In the earliest trade of which we have any record, men were already making use of a *medium of exchange—some go-between which each one obtained in exchange for his own goods and, when he had obtained it, used to buy other goods.* The exchange medium consists of some concrete good of such a nature that we can readily add to, or take from, the amount used, so as to make up an amount exactly equal in value to the object we wish to buy. With the assistance of such a medium, the troubles of the man who has grain to dispose of and wants a canoe quickly disappear. He simply sells his grain to the different persons who want grain, they giving him from their easily divisible store exactly as much of the exchange medium as the grain is worth; and then, taking to a canoe maker the medium thus obtained, he pays over as much of it as is necessary to purchase a canoe.

**Various Functions of Money.**—Exchange, then, is mediated by money, and wherever the money institution exists its principal function is to serve as the medium of exchange. It perhaps ought to be remarked in passing, however, that just because money is the medium of exchange, it almost inevitably takes on other functions. It serves, for one thing, as *a measure of value.* Being exchanged against all other goods, it naturally becomes the thing in which the values of all other goods are computed and expressed. It sometimes performs this function even when not actually called upon to serve as the middle term in exchange, as for example when two people estimate the value of their respective goods in terms of money, and yet proceed to exchange them directly, barter fashion. In fact, the value-measuring function of money often exists quite independently of its exchange function, and often seems of almost equal importance. Again, money or its equivalent, bank credit (which comes up for treatment in the next chapter), serves as a *medium of accumulation,* the instrument through which accumulations of capital are immediately effected. Closely allied to this last is its service as a *loan medium* since, as we know, the man who borrows capital must usually obtain it first in the form of money or bank credit. Money is also

utilized as the *legal means of payment,* in the discharge of taxes, fines, etc. Finally, in backward countries it is much employed, along with precious stones, as a *storer of wealth* by men who, seeking to save their property from robbers or tyrannical governments, turn it into these easily concealed forms. Various other functions of money could doubtless be distinguished in a fuller analysis. The central one, however, the one with which we are chiefly concerned in this course, and hence the only one calling for more than passing mention, is to serve as a *medium of exchange.*

In the earlier forms of exchanging society, the exchange medium or go-between was always some use-commodity, that is, a commodity which people generally wanted for some purpose to which it could be put directly, as for example, cattle, hides, tobacco, lumps of salt, or cubes of tea. But, with the passage of time and the increase of wealth, people got in the way of using as their medium of exchange something specially manufactured and set apart for this function. It is only when this stage is reached that we can properly talk about money; for by money we mean *an instrument specially made for, and adapted to, the work of mediating exchange,* and to those other tasks naturally performed by the exchange medium.

For many centuries after its introduction, the money of even the most advanced countries was little more than an aggregation of rather crude coins of very few varieties or sizes. But with the progress of industrial society, the money of each country has come to constitute an elaborate system containing many different kinds of money adapted to the performance of different functions, and all more or less perfectly co-ordinated into a coherent, self-consistent whole. We must now explain the principal features of such a system.

## II

## The Monetary System

**The Denomination System.**—The first element to be remarked in the American or any other monetary system is the scale of *denominations,* the *names* employed for expressing quantities of money. The need for some means of doing this is easily seen. The use of money to effect exchanges or measure values plainly requires

that we should be able to *express quantities* of money. But this means, as in similar cases, that we should have some unit or units for doing this,—some name or names which every one recognizes as meaning certain definite quantities. Such names are commonly designated "denominations." It would doubtless be possible to get along with just one of such denominations; but, on account of the great differences in the quantities of money which we need to make up for different purposes, it is obviously much more convenient to have a variety of such denominations, ranging from very small to very large ones. These different denominations usually differ by some convenient ratio, and form a coherent *system* of denominations.

The different denominations in such a system are naturally distinguished as Primary and Secondary. The primary denomination, more often called the *monetary unit,* is fundamental in the system, the other denominations being referred to it in defining their quantity. The precise significance of this statement is best explained by comparison with an analogous case, the unit of liquid measure. The gallon constitutes this unit, and other quantities are described as fractions or multiples of a gallon: thus a quart is a fourth of a gallon and a pint one-eighth of a gallon; thirty-one and one-half gallons make one barrel, and sixty-three gallons (two barrels) makes one hogshead. Similarly, in the American monetary system the unit is one dollar, and all secondary denominations are regarded as fractional parts or multiples of the dollar. The cent is a hundredth of a dollar, the dime a tenth of a dollar, the twenty-five cent piece a quarter of a dollar, the half-eagle five dollars, and the eagle ten dollars. In other countries, these denominations are different from the American and usually from those of any other nation; but in all of them some kind of denomination system exists.

**The Monetary Standard.**—The second essential element in a monetary system is the *monetary standard.* The special office of the standard is to *fix the meaning or value of the monetary unit.* For purposes of explanation, let us again refer to the analogue of liquid measure. As we all know, there exist at the present time thousands of liquid containers treated as gallon measures. Obviously it is quite possible that these should be unequal in capacity, so that, if we were

to measure a given amount of some liquid in one of these measures, we should get one result; if we used another of these measures, we should get another result; and so on. But of course it is quite important that, when measuring liquids, we should use measures having the same capacity, else the way would be open for unlimited error and controversy. How is this brought about? How do we insure that the gallon shall always signify the same thing? Simply by requiring that a true gallon measure shall be able to hold a certain amount, by weight, of some one substance, no more and no less. The standard chosen is pure water under prescribed conditions of temperature and air pressure. The amount is 8.33 pounds. This fact we express by saying that 8.33 pounds of pure water is the standard of liquid measure in the United States. If any receptacle proves upon examination to hold more or less than this standard amount, it is not a true gallon, and to make it so one must measure it something less than full, or full and something over. Only by being equal to the standard gallon can it hope to pass as a true gallon container.

The monetary system is in this respect the same as that of liquid measure. The money unit is one dollar. But we have many different kinds of money in which a dollar may be represented, gold coin, silver coin, greenbacks, bank notes, and so on. Now, all these forms of the dollar have very different degrees of intrinsic value; the gold dollar is worth just as much whether it is coined or melted into a shapeless lump; the silver piece is worth as much as gold when coined, but very much less when melted; the paper in itself is worth practically nothing. This being true, it would be very easy for the dollar as represented in different kinds of money to have different values,—the meaning of the dollar might change with every change in the kind of money used, and any accurate reckoning or dependable business agreements would become impossible. But here, as in the case of liquid measure, uniformity is secured by means of a standard. Within the boundaries of the United States, in every conceivable connection unless otherwise specified, one dollar means the amount of value which attaches to 25.8 grains of gold, nine-tenths fine. This amount of gold is known as the monetary standard, and according to it every dollar of actual money is judged. *A true dollar must*

*contain the same value as a piece of gold nine-tenths fine, weighing 25.8 grains.* And if any so-called dollar happens at any time to contain more or less than this standard amount of value, it is not a true dollar, and to make it so, something must be taken away or something added.

ILLUSTRATIVE PROBLEM

From a conversation in a barber shop in the fall of 1919. "One thing I can't understand. The price of almost everything is climbing; but the price of gold stays just the same,—always $20.67 per ounce of pure gold." Why is this bound to be true as long as our money laws are unchanged?

**The Different Kinds of Money.**—We have explained the denomination system and the standard essential to any monetary system. We must now distinguish the different kinds of money in which the denominations and the standard are embodied and comment on their several functions.

**The Standard Money.**—First, we have the standard money, that particular kind of money which *immediately embodies or represents the monetary standard.* As already noted, the standard in the United States is 25.8 grains of the metal gold, nine-tenths fine. But we do not, of course, actually make any use in ordinary commercial relations of the mere metal gold, unmanufactured, in the form of dust or lumps. Neither do we have such a lump of gold locked up at Washington to act as a standard for our money unit, as we have a platinum-iridium bar locked up in that city to act as a standard for units of length. The plan we actually adopt is to issue one particular kind of money called standard money, which is kept equal in value to the real standard, and, just as far as possible, to keep the meaning or value of the dollar in every other kind of money (as well as in all credit documents, prices, etc.) the same as the value of this standard money dollar. In the American system, the standard money is a coin made of the standard substance, gold, and containing just the amount of that standard substance which constitutes the standard. By devices which will more naturally be explained in a later connection, this kind of coin is all the time kept equal in value to the quantity of gold bullion which it is presumed to contain; so

that it may be said to *embody* the real standard supposed to lie behind it.

**The Immediate and the Ultimate Standard.**—If, as just observed, the value of the dollar in other kinds of money, in credit documents, prices, etc., is kept equal to the value of the standard dollar, this does not mean that the dollar in these other relations is directly kept equal to the value of a lump of gold weighing 25.8 grains. It is kept equal to the value of the standard money, gold coin; and the latter, in its turn, is kept equal in value to the lump of gold. If by any process the gold coin and the lump of gold should be separated in value, the dollar in other moneys, in prices, etc., would follow the gold coin rather than the bullion. This compels us to notice the distinction between the *immediate* monetary standard, the standard money, and the standard *behind* that, which is here called the *ultimate* standard, that is, the lump of gold which, under normal conditions, is the real determinant of the value of the dollar.

In the American system, as just indicated, the standard money, being made of the same metal and the same amount of metal as that contained in the ultimate standard, may be said to embody the ultimate standard. This is also the plan followed in most good monetary systems. It should be noted, however, that such an arrangement is not absolutely necessary; and we may better understand the relation between standard money and the ultimate standard by observing a quite different way in which substantially the same end could be accomplished. It is perfectly possible, theoretically, to have a system in which standard money is made of some other substance than the one which holds the place of ultimate standard. Thus, we might cut out gold coin altogether, issuing paper as our standard money, and yet retain gold as our ultimate standard, provided a dollar in paper was all the time kept equal in value to 25.8 grains of gold, while the dollar in all other forms was kept equal to that particular kind of paper money.

The plan of having a standard money which does not embody the ultimate standard, but is kept at par by some special device, suggests various schemes, which have been favored from time to time, for improving the ultimate standard. Thus, some economists believe

that, instead of having a single substance as the standard, we ought to use a large number, say 100 or more, in order to avoid too great and rapid changes in the value of the standard. A natural way to work out such a plan would be to issue paper money as the standard money, and set up devices for keeping this paper money equal in value to the list of goods chosen. Another way would be to have for our standard money a coined money, as at present, but to redeem that money in varying amounts of gold, always larger than the amount in it, and always so adjusted as to keep the value of the coin equal to that of the list of goods originally chosen as the standard.

### Illustrative Problem

Suppose that Congress should pass a law making the money standard one one-hundredth part of the value of a certain bill of goods.

(a) When the scheme was working as intended, what would be the total money value of said bill of goods?

(b) If at a certain time the bill of goods proved to be worth $107, showing that the money unit had left the legal standard, which way would that unit have gone, up or down?

(c) Answer the same question, supposing the money value of said bill of goods to be $95.

**Functions of Standard Money.**—Leaving this study of the nature of standard money, we must now add a word with respect to its functions. The standard money of our system, gold coin, though to a limited extent used as a medium of exchange in ordinary trade, is chiefly confined to two offices: (1) serving as the money of international trade, and (2) maintaining the gold standard by maintaining the convertibility of other forms of money. Standard money serves best as the money of international trade because it has a bullion or substance value as great as its nominal value, whereas other moneys do not. A man who accepts it, therefore, need have no misgivings lest he get less than he bargained for. To a limited extent international creditors accept non-standard moneys and, as we shall see in the next chapter, mere credit. But, in general, they must be paid in cash; and that cash must be something which is worth its face value. Hence they demand standard coin, or, even

better, bullion or bar gold which has not been manufactured into money at all.

But, while gold or standard money is needed for international trade, in the domestic exchange of most countries it is very little used. *The chief function of gold money within a country is to maintain the convertibility into gold of other kinds of money and so to maintain the standard of the system.* The standard, we know, has as its function the determining of the meaning or value of the monetary unit in all kinds of money. But most kinds of money, other than gold, for example, silver coin, copper coin, bank notes, etc., have in themselves as substance much less value than they claim on their face. A silver dollar, as silver, was, until quite recently, worth less than fifty cents; a hundred copper cents are rarely worth more than fifteen cents; a paper dollar, as substance, has no appreciable value. It naturally follows that some effort is needed to keep these different forms of money at par with, or equal in value to, standard money. There are various ways of accomplishing this result, but none really certain except one which makes it possible to get gold money in exchange for any other kind. It is not necessary that we be able to exchange other moneys for gold in any and every case, but it is necessary that we be able to obtain gold when we really need it,—for example, to make payments in other countries,—and that without being obliged to pay a premium or suffer inconvenience or delay. If at any time when we greatly needed gold we could not obtain a dollar of it for a dollar of other moneys, those other moneys would inevitably cease to be equal in value to the standard money.

In concluding this treatment of standard money, a word should be added concerning a form of paper money which is virtually equivalent to gold coin. I mean the gold certificate. This is a document certifying that the quantity of gold mentioned on its face has been deposited in the Federal treasury, and is held ready to be delivered in exchange for the certificate. The certificate is thus nothing more than a warehouse receipt for the gold coin in deposit. As long as the owner only wishes to hold this coin as a reserve or to use it in settlements at the clearing house, the certificate is all he needs, and is safer and easier to keep and carry about; and should it happen that

he really must have the gold itself, he can always get it by presenting the certificate.

**Quasi-Standard Money.**—We have explained the nature and functions of a standard money, basic money, as it is sometimes called. We must now comment briefly on the other kinds generally present in the systems of our time. First, it is not uncommon to have a quasi-standard money consisting of a note issued by the government or some special institution, a note which is legal tender in most or all relations, and redeemable in standard money. Such a money will perform most of the functions of standard money. Being directly redeemable in gold, every one will receive it readily, and only those who for some reason require the metal itself will insist on using the treasury note to get gold. Moneys of this sort, though not seldom employed in everyday circulation, have as a more distinctive characteristic the fact that they in large measure constitute the bank reserves of the country, particularly the central reserves. Doubtless, these reserves ought to contain a considerable quantity of gold itself; but the treasury notes answer almost equally well so long as the treasury keeps ample gold reserves to redeem them.

**Other Moneys.**—The remaining moneys to be found in any system with which we are familiar are employed mostly as ordinary media of exchange. First come the notes of the national banks payable at the issuing bank and also at the Federal treasury, having the status of legal tender to all national banks, and being receivable for all public dues except import duties. Next come the Federal Reserve *bank* notes. These are akin to the bank notes just named, being issued by the Federal Reserve banks on the security of certain types of national indebtedness. They were a compromise element in the law which established the Federal Reserve system, and would probably have been of little moment but for special exigencies growing out of the late war. As a matter of fact, a large quantity of them was issued; but the present law calls for their later retirement.

A third type of ordinary circulating medium is the Federal Reserve note (not bank note), issued by the Regional Reserve banks under the authority of the Federal Reserve Board. In form they

are treasury notes, that is, they are promises to pay, signed by the Treasurer of the United States. But the regional banks are required to assume the responsibility for them as if their own officers had signed them. These notes are receivable for all public dues, but are not a legal tender. It was hoped that they would in time replace all other notes; but this result is not yet assured.

A fourth sort of paper money is the silver certificate, which, in form, is a warehouse receipt for a corresponding amount of silver dollars, but which, in practice, is a bill used for what has been called "large change." Until recently, the silver certificate constituted the major part of our everyday medium of exchange; but it has been latterly replaced by other forms of paper, especially Federal Reserve bank notes. Unless, however, some change is made in laws at present in force, the earlier condition of things is likely to be repeated. The silver certificate is exchangeable only for silver dollars, but it is worth its face value in gold just as if it were redeemable in that metal.

**Subsidiary Coin.**—In addition to the moneys already enumerated, we have various sorts of coin. In general, they are literally or virtually subsidiary coins, though, in strict usage, this designation is limited to fractional silver. We therefore begin with explaining the distinctive characteristics of subsidiary coins. First, these coins are put out in *small denominations,* being specially intended for serving as a medium of exchange in minor transactions and as tools for "making change." Again, they are made of inferior metal, *metal having low specific value;* for a coin of small denomination, if made of valuable metal, would be too small for convenience in handling. Subsidiary coins are characterized also by *shortness in weight:* they contain a smaller amount of metal than would seem to be called for by their nominal value. As a result, they are worth less as mere pieces of metal than as money; so that, unless the value of the metal changes greatly, no one will melt them for the sake of the metal they contain. Their circulation is thus assured.

Again, subsidiary coins are strictly *limited in the amount* coined. They are issued only by the government, and the issue is limited to the amount which experience shows is really needed for the purpose

of trade. This policy is primarily intended to insure the coins of this sort against falling in value below their nominal value; and it has practically always been successful. So long as the needs of business keep subsidiary coins employed, so that few, if any, persons find themselves loaded up with an excessive stock, the coins remain at par. In the United States, this result is still more fully assured by a provision that the United States treasury shall *redeem* such coins at par in legal money.

Still another characteristic of subsidiary coin is the *limitation of its legal tender prerogatives*. This provision has two objects. First, it is intended to hinder any person from burdening creditors to whom he is making payment with a great quantity of inconveniently heavy coins. Second, it is intended to hinder subsidiary coins from displacing the standing money already established and putting themselves in its place,—a thing which might happen, if these coins were to become less valuable than standard money while still a full legal tender. How this would be brought about will be better understood when we have studied the principles governing the monetary standard given in Chapter XXXII.

A final characteristic of subsidiary money, not universal, but present under our system, is *redeemability*. One purpose of this provision—to insure that the money shall be kept at par—has already been explained, and needs no further comment. Another object is to enable persons coming into possession of considerable quantities of this kind of money to exchange it for more convenient kinds. The desirableness of such an opportunity is evident. Business concerns need *enough* small coin, but to be loaded up with thousands of dollars of such money, when the public generally would object to accepting it, would be very undesirable. The provision that the government shall redeem all such coin meets this difficulty completely.

The last few paragraphs have dealt with the sort of coin which is universally recognized as "subsidiary." A word or two should now be devoted to the varieties not always, or perhaps usually, counted in this class. First, we have token money or billon, consisting of very small coins made of cheap metals, for example, our nickel five-cent pieces and copper cents. This type of money was evolved earlier than the coins usually designated as subsidiary. But, theo-

retically, there is no good ground for distinguishing them from the latter; they usually have all the characteristics above enumerated for subsidiary coins proper.

The other money which is virtually, though not literally, a subsidiary coin is *the silver dollar* already alluded to on page 172. This cannot be strictly described as a subsidiary coin, because it *lacks* the characteristic of *limited legal tender* which is present in true subsidiary coins everywhere, and also lacks the redeemability of American subsidiary coins. Furthermore, while the silver dollar is not a full weight coin, it does not possess the characteristic of shortness of weight in so great a degree as the real subsidiary coins. Thus two half-dollars or four quarters do not contain quite as much metal as does one silver dollar. *In effect, however, it is a subsidiary coin.* It has most of the characteristics, and behaves as if it had them all. Although not limited, as are true subsidiary coins, in legal tender prerogatives, it does not displace the standard. And although not redeemable, it remains at par in spite of the fact that its metal value is much below its face value. These facts, however, should not lead us to think that the silver-dollar situation is an entirely satisfactory one. On the contrary, most specialists are convinced that the silver dollar ought either to be withdrawn altogether, or frankly and completely given the status of subsidiary coins.

## Illustrative Problems

1. Illustrate with concrete examples the drawbacks of barter as a method of exchange.

2. Illustrate the use of money as a measure of value in a case of barter.

3. In primitive communities the media of exchange have usually been objects desired for direct use and also objects commonly produced in the community. Give some reason or reasons for each of these facts.

4. During the first part of our history as a nation, silver fractional coins had the prerogatives of standard money, i. e., were freely coined and had the status of full legal tender. But in 1853 Congress deemed it necessary to put this kind of money into the position of subsidiary coin. How do you explain the fact that Congress got around to this opinion at about that particular time?

5. Between 1890 and 1896 it was a common practice to put into notes and mortgages a clause providing for payment in gold coin of legal weight and fineness. Try to get the proper explanation of this fact.

6. When I say that 12.9 grains of gold .9 fine is the monetary standard of the Philippines, what is meant?

7. In the United States in the year 1868, when gold payments on treasury notes were suspended so that a gold dollar was commonly worth from $1.20 to $1.40, one of the great political parties proposed to pay the national debt in these irredeemable treasury notes,—which proposal, however, was defeated in the Federal election of that year. In discussing the matter, writers commonly speak as if the national creditors objected to being paid in treasury notes rather than gold; whereas no one of them probably would have thought of asking for literal gold money. Explain in scientific language what was the precise issue of the controversy.

# CHAPTER XIII

## CREDIT EXCHANGE

### I

### The Process of Credit Exchange

We showed in the last chapter why exchange was not and could not to any great extent be conducted on the barter plan, and why a mechanism of exchange had been built up, consisting of specialized processes and instruments or media. We have thus far discussed one of the processes—money exchange—and one set of instruments, —money. We now pass to a second process called Credit Exchange, and the set of instruments employed by it, called Credit.

**Deficiencies of Money.**—Money exchange, as we saw, is superior to barter chiefly because of the fact that it uses a single standardized medium which everyone is willing to accept. But it is easily possible to overstate the convenience and facility of trade resulting from the use of this device. Everyone is willing to accept money, we say; but as a matter of fact, if a man sells a thousand or ten thousand dollars' worth of wheat or meat or land, he usually is very far from willing to accept actual money in exchange. In former ages, when actual possession of the money metal was prized as a sign of distinction, possibly most individuals received without hesitation practically all the money they could get. But this is not so today. No man however fond of wealth desires to have a bushel of money dumped on his floor. The heap would add little to his distinction, and would greatly embarrass him.

But the use of money may be inconvenient for other reasons also. It is unlikely that any would-be purchaser will have a bushel of money to give. Because of the difficulty of guarding it, and because of its entire uselessness when not in active circulation, even

the richest men prefer to keep in their possession at any one time only a small quantity sufficient to supply their everyday wants. When one requires a large lump sum, then, how shall he obtain it? Wait till it gradually accumulates, hoarding it as it comes in; scurry here and there, selling a little something to this man and a little something to that till he gets together a sum sufficient for his purchase? Furthermore, if he buys at a distance, at the extreme end of the continent or beyond an ocean, must the purchaser undertake the toil and expense and danger of transporting the money and delivering it into the seller's hands? By no means. These difficulties are obviated by the use of a still more highly developed medium of exchange, called *Credit*.

**Credit Exchange Defined.**—Briefly stated, credit exchange is the exchanging of goods for goods through the medium, not of money, but of *a right to claim money*. This is implied in the name "credit exchange." But this account of the matter is too compressed to be adequate. To serve as a medium of exchange is to be something which enables us to trade goods belonging to us for other goods, more easily and conveniently than we could by direct barter: we trade *our* goods for that medium, and then trade that medium for the *other* goods. Unless both of these operations are performed, the thing in question is not serving as a medium of exchange. It is not such a medium if we merely get it in exchange for our goods, and stop there. If we use the right to money—credit—in this way, we have merely loaned to our customer the money equivalent of the goods. All in good time he will have to pay the debt with money, which money will be the real exchange medium of the transaction. In like manner, credit is not a medium of exchange when I merely give it in exchange for other people's goods. In that case, they have lent *me* the money value of those goods. All in good time I shall have to pay them money which will, therefore, have been the real medium of exchange for the transaction. Credit itself will be the real medium provided only I use the claim created by selling my goods, to buy the goods of the other people.

**Reciprocity of Credits Necessary.**—It follows from the last paragraph that, if credit is to be used as a substitute for money, it

must be capable of acting as a true medium of exchange,—after I have accepted it in exchange for my goods, it must be able to buy the goods of other people. But, in order that this should be possible, it is necessary that the relation of debit and credit which is inherent in the system should be *reciprocal.* I must sell other people goods and other people must sell me goods; and the words "other people" must in some sense refer *to the same persons.* If certain persons wish to buy goods from me, while I, in turn, wish to buy goods from them, then I can sell them my goods for credit—the right to claim money—and then use that credit to buy their goods. In such a transaction, credit will have served as a medium of exchange. The transaction *uses* a medium of exchange, since goods are not directly traded for goods but for a go-between; and *credit,* rather than money, *is that medium,* since the reciprocal claims cancel, and so money is not used.

A situation such as that outlined naturally arises between two neighboring dealers who are mutual customers. If Hoaglin, the clothier, is likely to sell Frost, the shoe dealer, one hundred fifty dollars worth of clothes in the course of the year and to buy from Frost one hundred thirty dollars worth of footwear, credit can easily serve as the medium, money being used only for the twenty-dollar balance.

**The Difficulty.**—In the illustration of credit exchange just used—book credit it is commonly called—reciprocity of claims was inevitably present because but two persons were involved: if two-sided trade went on at all, it could not help setting up reciprocal claims, which could be used as the medium of exchange. But situations of this sort are comparatively rare. We do not usually buy from, and sell to, the same individual or set of individuals; we are far more likely to buy from one set and sell to another. Thus, the farmer sells his corn and oats to the elevator company and buys nothing from that company whatever; while he buys clothing, carriages, lumber, and other commodities from a set of merchants to whom he sells nothing whatever. Here mutuality of claims is non-existent; hence cancellation is out of the question; how then can credit be used as a medium of exchange?

**Solution: A Common Debtor and Creditor.**—The solution is not so difficult as it appears at first sight. Even in this situation a true reciprocity of claims exists,—only it exists between each person and *all the rest taken together.* If the farmer could in some way take what he owes everyone and set it over against what everyone owes him, a practically complete cancellation would be possible. He may not sell anything to any of the particular persons from whom he has occasion to make purchases; but he must sell to some persons, else he could not buy. It follows that, if the proper apparatus were available, he could use the claims against other people *taken as a whole,* which his sales had created, to buy the goods for which he wished to exchange his own. That is, credit would here again act as a go-between, a medium of exchange. The carrying out of such a scheme plainly involves what we call a *pooling* of the claims for and against the persons other than the one we are considering, growing out of transactions with that one person. No plan has ever been adopted whereby such a system could be applied to all transactions. But a device early developed extends its use to the major part of wholesale transactions and in the United States to more than half the retail transactions. That device may be described as, in general, one which makes one institution or group of institutions, a sort of *common debtor and creditor,* and allows it to effect settlement with each of its patrons, as itself the representative of *all the rest.*

**Banks Fill This Position.**—The institution which commonly serves different individuals in this capacity is the so-called commercial bank or the commercial department in some other type of bank. The primary functions of such an institution are, in ordinary banking language, deposit and discount—to care for the current funds of its patrons and make short advances to them as the need may arise. But an institution which takes care of its patrons' current funds almost inevitably is called on to make payments for them—at least this is the case in most English speaking countries; and in doing that it naturally drifts into the position of common debtor and creditor. When Mr. A, one of the bank's depositors, orders the bank by check to pay $20 to another depositor, Mr. B, and Mr. B deposits the proceeds of the check in the same bank, this act makes Mr. A the

debtor of the bank for $20 and makes Mr. B the creditor of the bank for the same amount. When, now, some other depositor orders the bank to pay $18 for him to Mr. A, the latter becomes a creditor of the bank for this $18, which is entered on his account, cancelling all but $2 of the debt created by A's $20 check in favor of B. So, when B gives still another depositor of the bank a check for, say, $25, he thereby becomes the debtor of the bank, the pooling agent, for $25, which is cancelled by book entries against his former credit of $20, leaving a debit balance of $5.[1]

Thus the process goes on indefinitely. Every check drawn by A makes him a debtor of the bank for the amount named, and every check drawn by another depositor in A's favor makes him the creditor of the bank for that amount; and the same is true of B or C, or any one of the whole list of depositors. In short, we see perfectly fulfilled the conditions mentioned as necessary for the working of credit exchange. Reciprocity is established between debts or claims; A's debts to other people are set over against other people's debts to him. And, given this reciprocity, cancellation becomes possible, and so credit exchange—exchange without the use of money—becomes possible.

In the preceding illustration we have supposed that Mr. A and his neighbors all keep deposits in the *same* bank. But generally there are several banks in one community; some are used by a part of the population and some by another part; and Mr. A, whose transactions we may suppose are many and various, will have debits and credits to settle with the patrons of banks other than his own. At first sight, this seems to result in a return to cash exchange, since a check on one bank deposited with another will not be debited to the former bank for any length of time, but will be promptly presented for cash. In fact, however, the bank which is debtor because of the supposed transaction will doubtless have come into possession of checks on the creditor bank which it can use to offset the claim against itself. Even if it has at the time no claims against *that*

[1] It should be remembered that each depositor is expected to keep some balance with the bank, a practice which insures that the bank can safely assume the position of debtor on behalf of the man who writes a check in favor of another depositor.

*particular bank,* it will certainly have some against other banks in the community; and, since all the banks will settle their mutual obligations on a pooling plan, these claims against other banks will do just as well in offsetting its debits as claims against its actual creditor.

**The Bank Clearing.**—We thus come to another very important development of credit-exchange, *the clearing,* or settlement of mutual obligations among a number of different banks. Here the same device which enables Mr. A to adjust his debits and credits with a minimum use of actual money, is applied to settle the mutual obligations of banks. In general, the plan is to set up a common agent, a clearing-house association, which becomes the creditor of each bank for claims of all other banks against it, and becomes its debtor for claims against all other banks. At regular intervals a balance is struck and the one which proves to be debtor, the bank or the clearing-house, pays the balance. Naturally, the clearing-house settles first with the banks which prove to be debtors, and then uses the money thus obtained to pay the creditor banks.

**Inter-Local Exchange.**—Our discussion has thus far had to do with exchange carried on through banks between persons in the same community. Another and much older form is *inter-local* credit-exchange, or what we call *Exchange* in the pre-eminent sense. This form is resorted to for making payment between different cities and countries with a minimum use of money. Here we have again the same familiar device: claims for and against different countries, debits and credits, get into common hands so that reciprocity is established and cancellation is made possible. Certain institutions in each country, banks or exchange houses, buy up all the claims on the other countries and also sell for the use of their patrons claims on those other countries. Thus, they become the common creditors and the common debtors of the dealers of their country in its relations to others; and the debit and credit relations which they maintain with other countries are maintained with institutions similar to themselves. It therefore becomes easy to set the debits of a country over against its credits, cancel these in so far as they are equal, and

effect a complete settlement by paying or receiving a small balance in money.

## II

### Instruments of Credit Exchange

As coins and bills of various different kinds constitute the instruments or media used in money exchange, so a variety of paper documents constitute those used in credit exchange. Some of these take the form of a direct promise between man and man to deliver a specified amount of money at a specified time. But, inasmuch as the promise must ordinarily be made good through the agency of a third party or institution, most of these documents are really *orders* made by one person, called the drawer, in favor of another person, called the payee, upon a third person or institution, called the drawee. If the payee does not himself find it convenient to present the document to the drawee for cash or for cancellation against his own promises to the drawer, he can transfer it to another person by indorsement—writing his own name across the back, with or without some specific directions as to payment.

The most familiar credit instrument is the bank *check* which has already been mentioned. It is an order for the payment of money drawn by a man upon the bank where his own money is kept in deposit. It is used principally within a single town or limited community where the drawee bank is located, and where both drawer and payee are known. Inter-local exchange makes very considerable use of the check, though banks much prefer other instruments specially adapted to this purpose. Most important of these is the *bank draft,* an order for the payment of money *drawn by one bank on a bank in another place, in favor of another party.* A bank draft is employed when the initiative in settling a debt is taken by the debtor. He buys the draft, and mails it to his creditor; the creditor then gets cash or credit for it from his bank; and the bank, if not itself the drawee named in the draft, proceeds to collect from the bank which is. Another class of exchange instruments similar to the bank draft are so-called *money orders,*—postal or express orders. These are drawn by local agents of the institution issuing them upon the central office, are sold to the debtor, and sent by him to the

creditor, who collects from the agent of the issuing institution located in his own town. When the initiative in settling a transaction is taken by the seller or creditor, the instrument employed is named a *bill of exchange,* though this phrase is also often applied to international bank drafts. Such a bill of exchange, also called a commercial draft, is an order for the payment of money *drawn by a seller or creditor upon his debtor in favor of the drawer or his banker.* (If in favor of himself, he indorses it over to his banker.) The creditor turns the draft over to his banker and gets credit for the amount named, whereupon the banker sets out to collect from the drawee through banking correspondents.

## III

## The Rate of Exchange

**Definition.**—A matter of much importance in connection with credit exchange is the *rate of exchange,* particularly the rate in foreign exchange. As we have just learned, money payments between the people of different communities are effected through agents who assume the position of common creditor and common debtor for each community. An agent in one community buys up money claims on other communities from persons having such claims to dispose of; and he sells money claims on other communities to persons needing them to make payments in those other communities. Thus, there is developed a traffic in such claims, a traffic in "exchange," as it is called; and the price at which exchange sells—at least exchange between different countries—is called *the rate of exchange.* Stated more formally: *the rate of exchange is the price in one country paid in the money of that country for the right to dispose of a unit of the money of some other country in that other country,* or at least in some country other than the one in which the purchase is made. Thus, if I wish to buy from my bank the right to have five pounds sterling paid on my behalf in London, and find myself obliged to pay for that right $4.87 per pound, I say that the rate of exchange on London is $4.87.

In domestic exchange,—exchange between different parts of the same country,—the rate of exchange usually means the *difference* between the face value of an instrument of exchange and what is

paid for it. Thus, if I say that the Chicago rate of exchange on New York is 15 cents premium per thousand, I mean that, in selling a claim for $1,000 on New York, a Chicago dealer would get his $1,000 and fifteen cents additional.

**The Par of Exchange.**—In working out the price or rate of exchange, the market starts with the natural value of the unit of the money wanted, as measured in the money with which it is bought —that is, the value as it would be if there were no difference of place, if the buyer of English money bought it right in New York to be delivered in New York. If the two countries have the same standard, then the natural value of either money in terms of the other can be ascertained by a simple operation in division. Thus, one dollar contains 23.22 grains of fine gold; and the English pound, 113 grains. The pound, therefore, is naturally worth in our money as many dollars as 23.22 is contained in 113, or $4.866. This natural price of a foreign money unit, measured in terms of the home money, is technically known as *the par of exchange.*

**Variations in the Rate of Exchange.**—The rate of exchange varies above or below the par of exchange according as the demand for exchange at par is in excess of the supply or *vice versa.* If the United States is selling great quantities of cotton and wheat to the people of Europe and buying comparatively little from them, then claims on Europe will be abundant and, other things being equal, cheap; those Americans who have claims on Europe to sell will be obliged to sell them cheap, while those who need such claims can buy them cheap. On the other hand, if the United States is buying many goods from the people of Europe and selling them comparatively few, then claims on Europe will be scarce and, other things being equal, dear; those Americans having claims on Europe to sell can obtain high prices, while those needing to buy such claims will be obliged to pay high prices.

**Limits: Gold Points.**—These variations of the rate of exchange above and below par are *limited by the cost to exchange houses of transporting the money itself from the one place to the other,—*

it being understood that cost includes a reasonable profit to the exchange dealer. Any wider variations would give exceptional profit to the exchange dealers, which would stimulate their competition, and so reduce the difference to this amount. In London exchange, the possible variation from par is commonly in the neighborhood of three cents; in other words, the rate ranges from about $4.835 to $4.895. These are called the gold points because, outside these points, sending gold would be cheaper than using exchange.

## Illustrative Problems

1. Suppose that you send a check on the National Bank of Ann Arbor to the Newcomb-Endicott Company of Detroit to pay for some goods purchased; and suppose that when the check finally gets back to you it shows the following indorsements: (1) Pay to the Peninsular Savings Bank of Detroit, the Newcomb-Endicott Company. (2) Pay to the State Savings Bank of Ann Arbor, Peninsular Savings Bank of Detroit. (3) Paid through the Clearing House, State Savings Bank of Ann Arbor. Trace the course of this check from the indorsements.

2. Henry T. Crouch of Erie buys $1,275 worth of wheat from T. C. Craig of Detroit.

(a) Suppose settlement to be effected with a wheat bill of exchange (also called a sight draft) and write out the substance of the bill which would be used.

(b) Suppose settlement to be made with a check and write out a facsimile (in substance).

(c) Suppose settlement to be made with bank draft and write out a facsimile (in substance).

3. Whichever method of settling the transaction involved in the last problem is used, the particular credit document employed will inevitably take quite a journey from bank to bank while it is being collected.

(a) Describe an imaginary course, which it would very likely take if it were a sight bill of exchange.

(b) Same, if it were a check.

(c) Same, if it were a bank draft. (Compare Problem 1.)

4. We buy a good deal from Brazil, but sell her little. We sell a great deal to Great Britain, but buy from her much less. Can you imagine a way in which one of these trades furnishes a medium of exchange for the other?

5. Oct. 1, 1907, the different banks of Ann Arbor brought to the clearing claims against each of the other banks as follows:

| *No. 1 against* | | *No. 2 against* | | *No. 3 against* | |
|---|---|---|---|---|---|
| No. 2 | $2213.19 | No. 1 | $4284.78 | No. 1 | $4974.66 |
| No. 3 | 1865.09 | No. 3 | 2172.45 | No. 2 | 1607.79 |
| No. 4 | 2415.96 | No. 4 | 3043.18 | No. 4 | 1093.24 |
| No. 5 | 512.21 | No. 5 | 655.87 | No. 5 | 625.88 |
| Total | $7006.45 | Total | $10156.28 | Total | $8301.57 |

| *No. 4 against* | | *No. 5 against* | |
|---|---|---|---|
| No. 1 | $3078.73 | No. 1 | $ 332.15 |
| No. 2 | 1793.16 | No. 2 | 377.17 |
| No. 3 | 973.73 | No. 3 | 1515.46 |
| No. 5 | 4633.96 | No. 4 | 181.56 |
| Total | $10479.58 | Total | $2406.34 |

Compute the balance for or against each bank.

6. Supposing all the claims of the Ann Arbor banks on one another which appear in the last problem to have consisted of checks which were used in the usual course of business transactions.

(a) What must have been the total volume, expressed in money, of the transactions thus effected?

(b) How much actual cash was needed to effect these transactions?

(c) What per cent of the total volume of transactions did this cash amount to?

(d) What is the significance of these facts?

7. Not many years ago it was estimated that the *per capita* money circulation of England was about $11 while that of France was about $51; yet, as every one knows, there was at least as much business *per capita* carried on in England as in France. How could the difference in the amounts of circulating medium required be explained?

8. Some writers represent the development of credit-exchange as a return to barter. Show that this is not true—that credit-exchange is still *mediated* exchange, nay more, that it is *money* exchange.

9. Suppose I wish to buy a bank draft for £200 on London. With London exchange at $4.855, what should I be able to get the draft for?

10. A wheat exporter of New York draws a bill on his London customer for £1375. What should he be able to get for this bill with London exchange selling at $4.87? with London exchange at $4.84?

11. Suppose that a New York importer can get 50 gross of Sheffield razors delivered in New York for 44 pence each (the duty included), and that he can sell them for 95 cents each. What would be his profit on such a transaction if the rate of exchange on London were $4.84? if the rate were $4.87?

12. From the last two problems what principles can you deduce as to the effect which a high or low rate of exchange tends to have on exports? On imports?

13. "The greater part of our circulating medium consists, not of money, but of deposit currency." Explain what is meant by deposit currency.

14. Near what point would you expect the rate of exchange on Europe to be found in the fall of the year? Why?

15. "A matter very frequently overlooked by the public is that a large share of the bank deposits of a country like the United States grow out of loans and so do not add to the cash holdings of the banks." Explain how this is so.

# CHAPTER XIV

## SOME MONEY TRUISMS

Having briefly analyzed and described the system of Money and Credit Exchange, it is now in order to set forth some of the principles governing that system. It is much too early in our study to attempt anything resembling a thorough exposition of the theory of money. Nevertheless a few of the simpler principles which, though little more than truisms, are frequently overlooked by the public with the result that foolish errors gain acceptance and lead to hurtful legislation, should receive attention at the very outset.

**Money Small Part of Total Wealth.**—The first point requiring emphasis has to do with the common fallacy which regards, or seems to regard, money as *the only kind of wealth.* In earlier centuries, whole communities have entertained such an idea, and even in our own day many people stand dangerously close to the same position. Anything that reduces the monetary stock of a community tends, in their opinion, to make that country poorer, no matter what the reducing force may be; and anything that increases the monetary stock, whether a balance of trade causing the import of money from other countries, or coinage by the government within the country, must have the effect of increasing wealth.

There is no doubt some little excuse for this attitude of mind in the predominant place which money holds in our everyday thought and speech concerning wealth. We express wealth, of whatever kind, in terms of money, for example, when we say that "Smith has inherited a half million of dollars," though as a matter of fact he has inherited only land, factories, and stocks *valued* at a half million dollars. It is a fact, too, that money will procure for us any other kind of wealth we may desire, and hence itself appears to us the most efficient and desirable form of wealth, the wealth *par excellence.*

Nevertheless these considerations surely do not justify us in conceiving money to be the only form of wealth. Any kind of goods capable of yielding satisfactions and having exchange value—diamonds, bullion, land, or what not—are wealth just as truly as coined money. It is essential therefore to keep always in mind the following proposition:

*Money is simply one particular kind among many kinds of wealth.*

**Money Small Part of Total Capital.**—The second fact needing to be insisted on at this point is that money *is not the only kind of capital.* Considered as an instrument which we employ to facilitate the exchange of goods and to accumulate or transfer stores of value, money is of course capital, just as truly as buildings, engines, or machinery. But certain peculiarities of money have led careless persons into thinking and talking about it as if it were the only true capital. Thus all forms of capital, like all forms of wealth in general, are computed and expressed in terms of money, as when we say, "Mr. Craig has $200,000 of capital in the milling business." We seem to mean here that $200,000 in money constitutes the capital which Mr. Craig devotes to the production of flour; but what we should mean is that Craig owns and devotes to such production certain buildings, dams, races, and machinery *which have a value measured in money of $200,000.* He may not, and almost certainly does not, possess anything like that amount of money capital, as money.

Again, people are sometimes led to look upon money as the only form of capital, from the fact that money constitutes *the immediate form* in which most capital is accumulated. A person desiring to accumulate a fund of capital, to invest in the milling business, let us say, puts away his savings in the form of money or credit with his bank; and only after the sum of money or credit has grown large does he part with it, obtaining in exchange the capital goods—lumber, engines, and machines—necessary to commence production. Still, the money stage of capital is obviously only temporary and transitional; it lasts only while enough is being stored up to bring in return an appreciable amount of capital in another sense. For this money

is only the *representative* form of capital, the shadow, not the substance. At the same time that the capitalist is accumulating stores of money or bank credit, other men are manufacturing, practically, if not literally, to his order, lumber, engines, and machines; and these other things for which the capitalist, or someone who borrows from him, exchanges his store of money or bank credit, constitute the real, final, form of capital. The truth embodied in the following proposition should, therefore, be constantly borne in mind.

*Money is simply one among many kinds of capital (capital goods), i. e., products which are wanted, not for their own sakes, but for the sake of other things which we can get through them; and relatively, money forms a rather small portion of the total capital of the community.*

**Only Enough Money Wanted.**—Another mistaken notion with respect to money, which has caused a great deal of trouble in the past and is still very widely held, conceives that a country can never have enough money,—can to advantage increase its stock of this particular form of capital indefinitely. Every addition is eagerly welcomed; every withdrawal is looked on with anxiety. Increasing the quantity of money is offered as a panacea for almost every undesirable feature of business. All this is, of course, very hard for the student to comment on with patience. The quantity of money a country can advantageously supply itself with is wholly a matter of the need, the money work to be done, over against the quantity of its resources which it can afford to use to satisfy this particular need in view of the relation between its total needs and its total resources. Doubtless there is no way of ascertaining with precision just how much this means. But that it is a limited amount no one would deny. The actual work in which the money stock of a country is at any moment being employed is serving as reserves behind the credit of the country, passing from hand to hand in exchange for goods and in payment of obligations, and being held by people in reserve for current uses and in the process of accumulating capital. For the uses which involve passing from hand to hand, any particular pieces of money will be used over and over again, so that the total needed for this purpose will be much smaller than the

total amount of work to be done would seem to indicate. Further, a large share of the money work of this kind needing to be done is performed by credit substitutes which are extemporized for each transaction; and their volume has little reference to the quantity of money proper in the country. It is thus possible that the country should experience great changes in the money work to be done without any inconvenience resulting, even though the quantity of money had not shown a corresponding change.

But not only is the community's need for money a quite limited quantity, it is surely very foolish to want to have more than this. To insist on supplying ourselves with a larger amount is like filling up one's house with cook stoves or tubs or washing machines. Any time or energy which we expend in acquiring such objects beyond the needs of the kitchen and laundry lays upon us a burden in caring for them, and, worse, it reduces the time and energy which we have to use in supplying ourselves with fuel, food, clothing, and other needed articles. Putting this point into a formal proposition gives us a third principle.

*Money is simply one particular kind of useful instrument of which our stock should be large enough to do the money work needing to be done as well as we can afford to have it done, but of which we do not want an excess any more than we want an excess of chairs, clothes, stoves, engines, or any other useful article.*

**Money Naturally in Circulation.**—A fourth widely accepted fallacy connects itself with the supposed advantages of "putting money into circulation." Exactly what this phrase means in popular usage is often hard to determine. If it means causing money to flow, or pass from hand to hand, the phrase is merely an empty one without excuse for being. Money is always in circulation, passing from one person to another in purchase of goods, or held awaiting occasion for such use. It will circulate anyway; from its very nature it is bound to circulate. Or perhaps the phrase means to render money more active, cause it to spend a greater part of the time actually going through the air, effecting exchanges, instead of lying motionless in men's pockets. But to expect that any benefit will result from causing money to change hands a greater number of times in an

hour or in a day is of course absurd. There is nothing beneficial in the exchange, *per se,* of money, because there is nothing beneficial in the exchange, *per se,* of goods. The exchange of goods should occur just often enough to enable us to dispose of those we have produced and to get possession of other goods which will be of most advantage to us as consumers. Any more exchanging would be, obviously, a waste of our time and effort. But, since money passes from person to person merely as a counter, a check against other goods, the number of times it can advantageously change hands is limited to the number of times those other goods can advantageously change hands. To pass it more frequently—if that were possible—would be merely a purposeless waste.

There is one other possible interpretation for the phrase. By "putting money into circulation" some people mean creating a demand, which would not otherwise exist, for goods and services, thus increasing the sales and the incomes of people generally and making the whole community more prosperous. This belief is no more tenable than the ones just discussed; but since the particular fallacy involved is one in contravention of a principle of trade which we designate Say's Law, and which is treated in the next chapter, we must reserve the consideration of this fallacy for that connection. The chief point of our present discussion may be summarized as follows:

*Broadly speaking, it is of the very nature of money to circulate (in person or by proxy), that is, to pass from one person to another in purchase of goods or to be held awaiting the occasion for such use.*

**Money Naturally Remains Money.**—Another truism which needs only to be understood to command immediate acceptance, and yet is constantly overlooked, has to do with the fact that the stock of money is not necessarily any measure of the existing wealth of a community. When we complain of the squandering of a great capital by a worthless heir, people at once say, "I don't see that any harm is done. The money spent by the foolish heir is still here. It has only been transferred to better hands."

Of course the money is still here. Money is a bit of social machinery of a highly durable character, which lasts almost indefinitely,

needing only small additions to keep it intact, like such permanent forms of capital as roads, canals, etc. Of course, then, the money is still in existence just as if the spendthrift had not thrown it about him so freely for yachts, dances, feasts, and other frivolities. But, on the other hand, there is a total lack of something else which would have come into being if the son had followed in the footsteps of his father. The father would have looked upon his money as a temporary or transitional form of capital, and would have gone on to consummate the process of capital production by the purchase of productive goods—engines, cars, bridges, shops. These goods could have been produced by the same labor which was expended in ministering to the young man's follies, and they would have continued for years to give off services, instead of totally disappearing, like the orchestra music or the champagne, over night. As a result of the young man's spending, therefore, society as a whole is vastly poorer than it might have been, even though the quantity of money is not altered in the least.

*Broadly speaking, it is of the very nature of money to remain money—not to be consumed in the sense of being finally absorbed into the life of any individual. Hence the fact that the stock of money is unchanged proves nothing as to how the amount of wealth or capital is affected by particular lines of conduct.*

**Trade Does Not Drain Off Money.**—A final fact deserving mention in this place relates to the effect of foreign trade upon the stock of money in any community. "Everything we buy abroad," so runs a popular fallacy, "takes just so much money out of the country," and the conclusion is drawn that the country thereby falls into great economic distress. Now a moment's reference to the facts set forth in our analysis of the Credit Exchange should make clear to anyone the error in this belief. We do not make our purchases abroad with money, but with instruments of credit. In like manner, we sell our goods abroad, not for money, but for instruments of credit. These two sets of instruments are cancelled against each other, only balances going in money; so that the amounts of money actually passing from one country to another are very insignificant. Further, of course, those balances will naturally be *in favor*

*of* any particular country just as much as against it. That is, there will very likely be no net movement of money at all.

There is indeed one condition under which there will tend to be a *net outward* movement of money from a country practically all the time. If we are a gold producing country and spend much of our strength producing this metal, and little in producing other goods which we can export to pay for our imports, then, of course, the balance of credit against us will be great, and we will have to export much money to cancel it. But even here *we are not exporting money in any true sense.* If we spend much time producing gold, we probably mine, refine, and subsequently coin into money a far greater amount than we can advantageously use as money. So far as our internal business is concerned, therefore, this excess is hardly to be called money; it is merely the metal, gold, a product of our labor, like wheat, or shoes, or pork, which we can and should ship abroad to those who desire it, in payment for the products which we desire of them.

But, while a country which is a large producer of gold, the money metal, may show a large net export of this kind of money, this will not be the case with other countries. Those which produce none at all will in the long run show a net import of such money; while those which produce just about enough to meet their own needs will have neither a net export nor a net import. *Between* countries, as *within* countries, money will act just as a medium of exchange must act. That is, it will come and go, go and come,—being wanted not to use for eating or wearing or warming houses or for any purpose that involves retaining possession of it or destroying it, but to use in exchanging our products for the products of other countries.

*It is of the very nature of money to go back and forth between communities; trade with the outside world does not of itself tend to take away our money.*

## Illustrative Problems

1. "Foreign trade can add to the national wealth only when it brings in a money balance."

(a) What is the principal thing to be gained by maintaining trade relations with the outside world?

(b) When would it be of advantage to have our foreign trade bring in a money balance?

2. "A nation is so much poorer by every dollar it sends out, just as an individual is so much poorer by every dollar he spends." Criticize both clauses.

3. "Everything we buy abroad takes just so much money out of the country."

Show that this cannot be true whether it is meant that such buying abroad takes the money out *immediately* or only *ultimately*.

4. Suppose that official reports from all the banks of a certain city show that, on an average, 93 per cent of the deposits received during a certain day consisted of checks, only 7 per cent being in the form of money. What important fact with respect to the conduct of business in that city would be thereby disclosed?

5. "It is sometimes asked whether the raising of a government loan to cover ordinary expenditures really causes capital to be lost, since the coins received by the government remain in existence,—even remain in the country. *This objection has no weight whatever.*"—Pierson's Principles of Economics.

Show that the statement in italics is correct.

6. "We pay 110 million dollars per annum for the carrying of products between this and foreign countries. Think of it. One hundred and ten million dollars in gold coin has gone out of the commerce of this country into the commerce of other countries. Can New York stand this?"—James G. Blaine in 1881.

(a) Is it likely that we permanently lost 110 million dollars in gold from our circulation because we hired foreigners to carry our goods?

(b) Is it likely that we even temporarily parted with that much gold on that account?

(c) Is it likely that as a nation we should have been richer if we had done this carrying of products for ourselves?

7. "I don't see that society as a whole loses anything by the giving of a fireworks exhibition costing $1,000. Of course the people who pay for the fireworks are just so much out. But then the $1,000 goes to the other people who furnish the fireworks so that society as a whole comes out even." Criticize.

8. "My numerous armies promote the circulation of money, and disburse impartially among the provinces the taxes paid by the people of the

state."—Frederick the Great justifying his wars in a letter to D'Alembert. (Quoted from Bullock.)

Was there anything in the facts stated to offset the sacrifices undergone by the people in paying the taxes?

9. "The summer boarders are a great blessing to our little village; because they put into circulation a lot of money, which means at least temporary prosperity."

What must we understand this phrase, "put into circulation money" to mean, if we accept the above as anything like an adequate explanation of the prosperity brought by the summer boarders?

10. "The individual can get rich only by selling more than he buys and saving the surplus in the form of money or bank-credit. So a country can increase its wealth only by exporting more than it imports, and taking the difference in money." Discuss both parts.

11. "I am not convinced of the soundness of the orthodox doctrine that a country can have all the money it wants and needs, just as it can have all the engines, machinery, etc., which it wants. Money is very different from other things. It would be easy to give a man all the food and clothes he wants; but, however much money you offered him, he would take it all gladly." Criticize.

12. From a Salt Lake supporter of the "Seeing America" movement: "We recognize that Americans are annually spending $200,000,000 in foreign travel. That practically every dollar of this vast sum is lost to the home circulation cannot be disputed." Criticize the last sentence.

# CHAPTER XV

## SAY'S LAW

The preceding chapter sought to emphasize certain elementary principles governing the mechanism of exchange, principles which, though little more than truisms, are often overlooked. For exchange itself—the process of trade between individuals and communities—there are similar elementary principles which are so commonly neglected or misunderstood as to call for early comment. One of these, perhaps the most fundamental of all, has already been given on page 33, in the proposition that the chief function of exchange is to make cooperation and specialization possible. In this chapter, we consider a second principle of this kind, one which we shall designate Say's Law.

**General Demand Fallacies.**—Among the fallacious notions in popular thinking that have gained very wide currency are to be found a number which grow out of misconceptions as to the real source of the *general or total demand for goods,* and as to the methods by which that demand is increased or diminished. Several types of these fallacious notions may be cited. Thus, governmental improvements of all kinds, including even those of questionable value, are often supported by business men and others on the ground that such improvements increase the total demand for goods. Catastrophes, such as the San Francisco earthquake, disastrous fires, tornadoes, or even only freezing weather which causes water pipes to burst, are frequently accepted as evils not unmixed with good inasmuch as the expenditures necessitated for reconstruction and repairs are supposed to increase the general demand. On the other hand, persons of thrifty habits who save a large share of their incomes are frequently the objects of criticism on the ground that saving diminishes the total demand for goods. Again, many persons

seek economic support for the opposition to prison labor, and to the employment of women and children in industry, in the argument that such employment diminishes the number of jobs open to laborers generally. Finally, we have the fears of those who periodically prophesy universal overproduction—a universal glut. A true understanding of the nature of the total demand for goods will show that these notions are fundamentally unsound.

**Their Argument.**—What is meant by those who believe that governmental expenditures or destructive accidents tend to increase the general demand for goods is that *they set up chains of purchases which would not otherwise be made,* and, in doing so, *bring about an increase in the total demand for goods.* Now, the trouble with this account of the matter is that only one half of it is true. The chain of purchases indicated is really set up; but it does not result in the increase in total demand which is claimed. The case for the chain is evident enough. Thus, take the example of a householder whose roof has been blown off by a severe storm or tornado. He at once proceeds to buy shingles and hire carpenters; the carpenters and the lumber dealer, finding their incomes increased, buy more groceries and clothing; the grocer and clothier use their unusually large receipts to improve their stocks by purchase from the wholesaler, or spend more freely for pleasure rides and concerts; and so on. Thus the purchases made by the roofless householder extend themselves indefinitely down the line, business quickens everywhere, and the prosperity of the whole community seems to be heightened.

**The Fallacy.**—But, now, what about the second half of the popular account of this matter? Does the series of reactions which all admit follows the tornado result in an increase in the *total* demand? The correct answer is surely a negative one. The money which on account of the tornado our householder was compelled to spend putting on a new roof would ultimately have been spent anyhow, though in some other direction; and, being thus spent, it would have created just the same demand for commodities or services. Thus, for the sake of simplicity, let us suppose that our householder had planned to use the money spent on the new roof in putting a cellar

under a part of the house which was hitherto not provided with this convenience. A necessary result, then, of spending this money to repair the broken roof is to *prevent it from setting up another chain of purchases,* starting with those needed to excavate the *cellar.* This other chain would have begun with the hiring of cellar diggers and the buying of cement; the diggers and cement dealers would then have spent more for furniture and dental service; and the furniture merchants and dentists in their turn would have spent more for automobiles and real estate. In short, the purchases made by the householder in digging a new cellar would have extended their influence endlessly, stimulating business and apparently bringing prosperity into the world, *just the same as purchases made to repair a roof whisked off by a tornado.* Hence the tornado does not increase demand in the least, it merely *substitutes one chain of purchases for another.*[1]

Perhaps, however, the objector may argue that our householder need not spend the money at all. He may, instead, put it into a bank. Truly; but then money that is put into a bank is not kept there. It is loaned out to people who need it to meet immediate expenses or who wish to increase the capital which they are employing in their business. In any case, they are people who, after borrowing the money, will surely use it to buy goods of some kind, and so will increase the general demand just as much as did spending that money to put on a new roof.

**Demand Coincident with Income.**—What, now, is the generalization to be made from the story of our house owner? Immediately, it is this: The contribution made by any one person to the total demand for goods is, in the long run, bound to be just equal to his income, no more and no less. He cannot demand more goods

[1] Incidentally, too, we should note that, from the standpoint of the original householder, the chain of purchases which would have been started by digging a cellar is much more desirable than the one actually started by repairing the roof. The second process leaves the man with a house no better than before—a house having a roof but no cellar. The first would have left him a house already sufficiently well roofed, and improved by the addition of a cellar. Hence, while business in general gains nothing from the tornado, the householder suffers a positive loss.

than that income will buy; he or someone who borrows his money is certain to demand as large a quantity as that income will buy.

**Demand Coincident with Product.**—But this only starts us on our way. What determines the quantity of his money income? Broadly speaking, this is determined by the amount of goods or services which, under existing legal conditions, is credited to him as his product,[2]—*it being assumed that he is producing something demanded and producing that something in the proper proportion to other goods produced.* It follows that the contribution to total demand made by anyone is necessarily equal to the *quantity of his product;* it *cannot* be greater; it *must* be as great. Finally, since the total demand of a community necessarily consists of the sum of the demands made by the individuals who constitute the community, the *total demand* of that community must equal its *total product;* it cannot be greater; it is bound to be as great. But these propositions are so important that they must be more specifically defended.

**Demand Not Greater than Product.**—Demand *cannot be greater than product,*—cannot, at bottom, include anything outside of product. Imagine a shoemaker who makes nothing but shoes desiring to obtain a quantity of wheat from a wheat farmer who raises no other grain. Obviously, the only way he can hope to obtain wheat is to offer shoes—either directly on the barter plan, or indirectly through a money medium—in exchange. But these shoes which he offers he must first have produced—they are a product; hence the shoemaker's demand for wheat cannot include anything outside of his product (shoes). Reversing the hypothesis, if the wheat grower desires a new pair of shoes, his demand for shoes cannot include anything outside of his own product (wheat); he simply has nothing else to *demand with.* Now, if this is true of two people in their relation to each other, it must be equally

[2] This is not to be taken as meaning that the individual is morally entitled to the particular income which he is receiving on the ground that he produces it. The *product is here* whether or not the right man is credited with it; and the value of that product determines the volume of demand resulting, whoever ought to control that demand.

true of one person in his relation to society as a whole: the demand made by shoemakers for market goods of all kinds can include nothing but shoes produced by them and offered on the market; the demand made by wheat growers for market goods of all kinds can include nothing but wheat produced by them and offered on the market—in each case nothing else will serve as a demand for goods in general except something which the individual has himself produced. Finally, this proposition, being true of every individual, must be true of all individuals taken together. The demand of all the people in the community, *the total demand,* can be no greater than the product of all the people of the community, *the total product.* Finally, what is true of each nation in its relations with the rest of society, is equally true of all society, of the whole world, in its complex, intricate relations with itself. *The demand made by all society for market goods of all kinds can include nothing but goods which the same society has produced and offered on the market.*

**Demand as Great as Product.**—Demand *must be as great as product,* must include all of the goods produced for the market—*assuming that producers have directed their production in true accord with one another's wants.*

It goes without saying that all goods produced for the market will be offered in exchange, that being the purpose of their production; and, by being offered in exchange all these goods come to constitute a demand for other goods, *in so far as this matter is determined by the purpose of their producers.* Thus, if the shoemaker produces and puts on the market each year two hundred pairs of shoes, then, as far as his intent goes, every one of these shoes constitutes a demand for bread, or meat, or clothing, or some other good which the shoemaker needs. What is true of the individual is obviously true of the aggregate of individuals also. All the goods which they all produce constitute a demand for goods, in so far as the purpose of the producer affects this matter.

But we have yet to deal with the proviso "in so far as this matter is determined by the purpose of their producers." This proviso is needed because the question whether or not a product shall form a part of demand depends not only on the attitude of

the producer of that product, but also on the attitude of those persons who must be depended on to buy said product. For demand involves not only a desire on the part of the prospective buyer, but also buying power; and buying power can be derived from products one has to sell only on condition that other people *want* those products, as well as have the power to offer other goods in exchange for them. It follows that a particular product comes to constitute a part of the total demand for goods only in so far as it is a product for which there is a corresponding demand. For example, the two hundred pairs of shoes of our shoemaker constitute a part of the total demand for goods only on condition that they are goods which other people demand,—stand ready to buy. And this implies, it should be noted, that the product in question is demanded in the proportion in which it is produced—when we produce a thing we do not add to demand in proportion to the volume for our product unless we are maintaining the proper proportion between our products and other products.

The points just brought out with respect to the relation between demand and the output of goods are so evident that some will consider it scarcely legitimate to give them the dignity derived from formal statement. On the other hand, the continued prevalence throughout the larger part of the community of the fallacious notions which these considerations are designed to correct seems to furnish ample ground for any procedure which gives these points adequate emphasis. I shall therefore put the proposition we have discussed in the form of a principle. This principle, I have taken the liberty to designate Say's Law; because, though recognized by many earlier writers, it was particularly well brought out in the presentation of Say (1803). This principle may be stated as follows:

**Principle**—Say's Law. The Ultimate Identity of Demand and Product.

*In the last analysis, the demand for goods produced for the market consists of goods produced for the market, i. e., the same goods are at once the demand for goods and the supply of goods; so that, if we can assume that producers*

*have directed production in true accord with one another's wants, total demand must in the long run coincide with the total product or output of goods produced for the market.*

**Say's Law a Long-Run Principle.**—In the case of sciences—even physical sciences—which deal with highly complicated phenomena, many principles have to be affirmed as true in the long run; and this frequently applies to the science of economics. Thus, everyone knows that the prices of goods tend to equal their cost of production; but everyone also knows that changes in cost do not immediately cause corresponding changes in price. Now, this comment is applicable to Say's Law to a more than usual degree. For this, there is one very substantial reason. It is this: save under the most primitive conditions, every exchange of product for product is broken into two parts—(1) exchanging one's own product for money or bank credits, and (2) exchanging the money or bank credits thus obtained for the product of the other man. Obviously, an interval of time can be put between these two operations; and, as a matter of fact, such an interval, short or long, almost always intervenes.

It follows from the facts just brought out that it is possible for us to *postpone* for a long period, even indefinitely, the second part of the operation, thus *cutting down for the time being the general demand for goods, though we have not cut down the amount of production.* On the other hand, it is possible that, by getting possession of the medium of exchange, money or bank credits, in ways other than by exchanging our goods for that medium of exchange, we should perform the second half of the exchange operation before having performed the first half. In this way *demand may be increased enormously, though production has not been increased at all.*

The qualification of Say's Law made necessary by this peculiarity of money exchange has little if any bearing on the use of that principle to correct the fallacious notions which were used to illustrate this discussion. But there are a number of matters in respect to which this limitation on Say's Law is of much importance. One of the lesser of these is closely connected with

one of those fallacious notions which were brought forward in the earlier part of this chapter, namely: the idea that by increasing governmental expenditure we can increase the total demand for goods and so increase general prosperity. Such a device, looked at as something to be made use of in ordinary times when economic affairs are running along in normal fashion, is, from the standpoint of sound economic science, quite impracticable. It could do nothing more than deflect demand from some lines of production to other lines of production.

But the case is very different if circumstances have brought us to a point where the first of the discrepancies between demand and output noted above has become quite general,—that is, a point where *buyers generally* are suspending the second half of the exchange operation. Such a procedure means a *general decline in demand,* hence of necessity a general slackening of productivity all along the line. A situation like this is characteristic of the depression which follows a business crisis. If, now, under such a condition of things, the public authorities step in and undertake a large program of road-making or building construction or harbor improvements, this will really mean a considerable increase in total demand and so an increase in general prosperity.[3]

Much more important cases where the practice of breaking the exchange operation into two parts makes possible a change in the volume of demand in general which is not preceded by a change in the output of goods in general, arise in connection with the phenomenon of money and credit. But these are not suited for consideration at this stage in our economic study.

## Illustrative Problems

1. "George Rankin is of course a big fool to spend $400 making a mill dam in a creek which is dried up every summer and never has enough water to run an ice cream freezer; but he is doing one good thing,—he is making a whole lot more demand for labor and so a lot more employment for laborers."

Explain fallacy.

[3] It may even be the beginning of a general revival of business.

2. "There is just so much work to be done. The entrance of women and children into the field of labor must drive out an equal amount of adult male labor."

Criticize. (There are no doubt objections of real weight to the extension of child and female labor; but this is not one of them.)

3. "The real cause of the present standstill in trade is the inequality of incomes. There can be no effective demand, because those who have the money to buy have no unsatisfied wants, while those who have the wants have no power to buy." Criticize.

4. In a certain part of a recent novel, Mr. Blossom, a young painter and decorator, is trying to induce Miss Cynthia to give him a job redecorating her house, which is somewhat behind the times in this respect. The latter part of the conversation on the matter is as follows:

"'Live and let live' is a good enough motto for me."

"'Live and let live,'" repeated Miss Cynthia, thoughtfully. "What do you think that means?"

"Why, it's plain enough," said Mr. Blossom, strongly. "You're living all right, ain't you? Got enough of everything and something to spare . . . ; but you've got to let other folks live. . . . If there's anything you want done that you can't do for yourself, hire somebody that can do it . . . so they can live, too. If everybody did that right along, I guess there wouldn't be so much talk about labor unions and strikes and all that sort of thing."

(a) Would Miss Cynthia's deciding to spend and actually spending $600 to redecorate her house increase the employment of laborers generally?

(b) Why can we be certain that everybody is now doing the thing which Mr. Blossom thinks they ought to be doing?

5. Street comment on a cold snap which bursts numerous waterpipes: "Hard on householders, sure enough; but no great loss without some small gain. It's a bonanza for Ann Arbor plumbers." Is that sound?

6. Mr. A, having earned and saved $10,000 in gold, buries it in the ground. Another, having earned and saved $10,000, spends it on a great banquet. Which makes the greater demand for products? Explain.

7. Would we naturally expect events like the San Francisco earthquake and fire to increase the demand for labor in general? Explain.

8. "Economically it is for the interest of every class of producers to see the efficiency of other classes of producers increase." Why?

9. "The extraordinary advance in industrial technique characteristic of the last half century has so increased our productive capacity that, when things are running smoothly, output is bound, sooner or later, to exceed demand, which condition of things invariably leads to a commercial crisis followed by a general collapse of industry." Criticize.

10. The *Chicago Record-Herald* for April 18, 1908, contained the report of an interview with the head of one of America's great universities, wherein various opinions and statements were attributed to King Haakon of Norway. Among these was the following: "I could black my own boots if I wished to; I have done it and therefore know how; but if I did, what would become of the people who make a living blacking boots?"

Criticize on the basis of Say's Law.

# CHAPTER XVI

## THE PRINCIPLE OF RECIPROCITY

**The Buy-Little Fallacy.**—One of the most persistent and widespread of errors with respect to economic matters is that, in the trade between countries, the condition of maximum desirability is to be *always selling, never buying,* or anyhow selling as much more than we buy as is possible. Almost every year our foreign trade reports seem to show a great excess of exports; and this announcement always brings out a chorus of congratulatory comments from our press.[1] Now it is quite certain that such one-sidedness in trade—selling without buying—would be in the highest degree *undesirable,* if it were feasible. It would not be for our *advantage* to sell more than we buy. But, further, it is quite certain that such one-sided trade *would not be feasible,* supposing it to be desirable. Generally speaking, it is not possible for us to sell more than we buy,—our exports *cannot* exceed our imports. The second of these propositions is more especially the principle with which we are here concerned; but some comment on the first seems called for.

**Not Desirable.**—In showing that selling without buying would not be desirable, it will perhaps be best to start from the standpoint of *individual trade.* That such trade would not be desirable for the individual is almost self-evident; for this proposition necessarily follows from the *very function* for which trade exists. That function, as fully explained in our general account of the

[1] As will be explained in a latter connection, there are times when, in view of the relation of foreign trade to *another* matter—the stability of the monetary system—it is desirable to have an export trade balance. For this reason, there is at times some propriety in thinking of such a balance as a *favorable* one. But this is not what the general public have in mind when accounting every such balance favorable.

present economic order, is to consummate and therefore to make possible that cooperation between us and our fellows which is so essential to high productive efficiency. But obviously such cooperation would not be accomplished unless each bought as well as sold. The advantage which each derives from cooperation is dependent on *getting the products of others,* that is, buying. Selling his own products is of no significance to him except as it is a *preliminary* to buying the products of others.

But the reader may be disposed to object that *some exceptions* to this account of the matter must be admitted. First, the seller may be a *miser* who only desires to heap up stores of gold, not caring for goods at all, or anyhow not caring for any goods in excess of the absolute necessities of life. Secondly, the seller may be a prospective *capitalist,* one who is accumulating surplus wealth in order to get from it an income, and who, therefore, *saves* the money he gets from the sale of his goods, instead of buying other goods.

The first of these objections is easily answered as being only a *seeming* exception. The miser is *really buying something,*—only in his case, that something is money. That is, in his thought money is not really money—the medium of exchange—but a *commodity,* the particular commodity which his perverted taste leads him to desire rather than the kinds of commodities most men desire.

The unsoundness of the second exception is almost equally evident. It is hardly even a seeming exception. The person who is accumulating capital is merely *postponing* the buying half of the transaction,—a thing every one has to do when buying expensive goods, in that he has to get together from different sales enough money to cover the larger amount of money needed to make the particular purchase in question. In the end, the capitalist buys goods or lends to someone else who buys goods. If he pursues the former policy, the only peculiarity of his case is that he buys *a different kind* of goods from those bought by other people, namely *producers' goods*—goods used in the making of other goods. Doubtless his decision to save his money until he has enough to buy goods of this sort is of much importance,—may alter greatly the course of things; but it does not mean that the money he obtains

from the sale of his goods is not used for buying other goods,—that the second half of the exchange transaction is left incomplete.[2] The case is not materially different if our capitalist *lends* his accumulations. The borrower will, of course, use those accumulations to buy goods. Thus, in the end, the buying half of the transaction which began with the original sale will finally be consummated.

**Not Feasible.**—We have seen that, in the case of trade between individuals, selling without buying could be of no advantage, would not be desirable, if feasible. That such one-sided trade *would not be feasible* is quite as certain. We are not able to sell without buying; reciprocity is inherent in trade; buying and selling mutually condition each other. The truth of this proposition is obvious in the case of *direct* exchange, barter. Unless I accept the goods of the other man, I get no pay for my own. But our proposition is no less true when barter is broken into two parts, sale and purchase. First, the man who buys from me must be able to sell to *some* one in order to get the means to pay for his purchase from me. Secondly, this is feasible only provided I make purchases from him or from some person or persons with whom he is directly or indirectly connected in trade.

**Trade Must Be Reciprocal.**—The former of these two propositions is so evident that it needs no discussion. The second, however, may not at once command assent. For, at first thought, the reader may be disposed to say: True, someone must buy from my customer, else he cannot get the means to pay me; but it is not necessary that I should be that someone; another customer will answer just as well. Doubtless the statement is quite true as far as it goes; but it does not meet the difficulty. Mr. B who buys from me may have obtained the means of payment by selling his product to Mr. C; in turn, Mr. C may have obtained the means

[2] Some care is needed in using or interpreting the word "spend." While there is no impropriety in attaching to the term the idea that the goods for which the money is given are not very necessary, are even goods which under all the circumstances we would better do without, we must not let ourselves drift into thinking that money paid out for necessary, approved, goods is not just as truly *spent,* if we mean "parted with," used to buy something.

of payment for his purchase from B by selling his product to Mr. D; in turn, Mr. D may have obtained the means of payment for his purchase from C by selling to Mr. E; and so on until the last man in the world other than myself has been brought into the chain. But *that last man must be able to sell to me* in order to forge the first link in the chain which *ends in purchases* from me.

In order to make this point clear beyond question, let us give it concrete illustration on the basis of an extravagantly simple hypothesis as follows: Our trading is limited to four persons whom we will designate A, B, C, and D, respectively. Each sells all his product to one other member of the group; each also makes all his purchases from one member of the group, this time a different one; and each produces and exchanges $10,000 worth of goods. Let us now conceive one of the four, A, to be set over against the other three, and try to show that, *if he would sell, he must also buy*. Let us suppose that B stands ready to take A's $10,000 worth of products; C to take B's $10,000 worth; and D to take C's $10,000 worth; while A, by the original hypothesis, is determined only to sell, never to buy. What result must follow? Plainly there is no one to whom D can dispose of his $10,000 worth of products; he, therefore, cannot buy those of C, though he desires to do so. As a result, C cannot buy those of B; and finally, B cannot buy those of A. Thus all exchange is stopped because A makes no purchases. Let him reverse his policy, and all difficulty at once disappears. If A will buy the goods of D, the latter will have the means to buy the goods of C, who will then have the means to buy the goods of B, who will then have the means to buy the goods of A.

**Inter-Group Trade Must Be Reciprocal.**—The above argument to show that trade between individuals must be reciprocal, that we must buy if we would sell, was only preliminary to our real task—to show that *trade between communities, countries, must be reciprocal,*—purchases and sales, imports and exports, must balance. Before getting into this task, however, we must take a moment to make more definite and precise *just what is meant by the thesis defended.*

First, the contention is that our foreign trade must show equality between *purchases* and *sales,* imports and exports of services and goods, *not including money.* In general, the money of a country is a necessary part of its economic equipment which it can no more spare, save for a very brief period, than a household could spare its cook stove or beds. Doubtless a country may for a time use its money stock to make purchases for which an altogether exceptional need has risen; but, generally speaking, such a policy will not, cannot, be continuous. To this exclusion of money from the list of exports and imports to be equalized, however, one exception must be pointed out. Standard money is usually a *metal product;* and a product of very uneven distribution in respect to production. A few countries mine practically all the gold of the world. This being true, most countries must import their supplies of money metal, which obviously means that the producing countries must export that metal. But, again, this particular product *is commonly marketed, not as a metal, but as money.* Producers sell it directly to mints or assay offices or to banks which dispose of it to mints or perhaps at once treat it as international money. It follows that the distribution of gold from producing to non-producing countries will largely take the form of moving money (frequently gold in bar form) from the former to the latter. Accordingly, it is to a certain extent necessary to include as a part of the exports or imports of a country, money sent out or brought in. This exception, however, is commonly of little importance, save when the producing country has almost no other product, for example, the Klondike.

**Real Exports and Imports.**—A second point with respect to the proposition that exports and imports must be equal, which needs to be noted, is that the exports and imports had in mind are the *real,* the *true,* exports and imports, *not those reported by the customs authorities.* The latter are seldom if ever equal, though the former *must* be. The explanation is easy. Customs reports do not, and cannot, show *all* exports and imports. Thus, the true imports of a country obviously include *everything* bought by its people from the people of other countries. But *some* of these things bought from other countries cannot, or at least do not, come to the knowledge

of government officials. Of these the most important are (1) goods and services bought from the foreigner in his own country, e.g., by our people traveling there, and (2) *services* bought from the foreigner and delivered in our own country, but not appearing in import lists because *as services* they do not go through the custom house. In short, there are *invisible,* as well as visible, imports; and it is the sum of both of these which must be equal to the total of exports. What has been said of imports applies of course to exports. Of these some are visible, some invisible; and it is their sum which must equal the total imports.

Accordingly, if we wish to get a correct balance sheet of the exports and imports of a country, we must add to the figures furnished us by the customs officials, figures from other sources—mostly mere estimates—taking into account these invisible exports and imports. Thus, if it is true, as some say, that we get transportation done for us by other nations to the value of $200,000,000 per year, we must enter on the *import* side of the balance sheet an item like this:

*Services of Carriers*.....$200,000,000

So, if it is true that we use capital borrowed from other countries to an amount which calls for $120,000,000 of interest per year, then we must enter on the import side this item:

*Services of Borrowed Capital*.....$120,000,000

or, in the more usual form:

*Interest of Borrowed Capital*.....$120,000,000

I hardly need add that the countries *selling* us these services would have to make similar entries on the *export* side of their balance sheets.

**Total Exports: Total Imports.**—As a final comment in interpreting the Principle of Reciprocity, we note that the equality of exports and imports which is declared to be necessary is equality

between the exports of a country *to all other countries* and its imports *from all other countries,—not* equality between its exports *to each country* and its imports *from that same country.* We buy from England much less than we sell to her; but, then, we buy from some other countries to which England sells an excess of goods, much *more* than we sell to them. In conventional language, international trade is triangular. More precisely, it is *multiangular.* But, however many angles it may show, the total *in* must equal the total *out.*

**Argument for the Principle.**—So much for *the proper interpretation* of the Principle of Reciprocity. We must now add *the argument* on which that principle rests. Perhaps the simplest proof is analogous to that used in establishing the same principle as applicable to the trade between individuals. That is, each *must buy* as well as sell, since otherwise the rest *will not have the means* to buy from it. Thus, let us suppose that the A, B, C, and D of our illustration on page 210 represent *different countries.* Now, as before, it is possible that each country should buy from some country *other* than the one to which it sells. It must, however, buy from *some* other country; since otherwise some member of the series will not have the means with which to make the purchases necessary to complete the series. It is not possible for Country A to be just a seller, not a buyer. It must buy from Country D, in order that D should be able to buy from C, in order that C should be able to buy from B, in order that B, should be able to buy from A itself.

**Inequality of Exports and Imports Self-Corrective.**—We have shown that the foreign trade of a country must be two-sided on the ground that only so can those to whom that country sells have the means to pay for their purchases. A more difficult, but perhaps more adequate, proof is that *inequality between the exports of a country and its imports is self-destructive,*—that this fact of itself sets up reactions tending to bring about equality of exports and imports, so that equilibrium cannot be established until such equality of exports and imports has been secured.

**Through Rate of Exchange.**—The first of the reactions tending to bring about the result indicated is the effect produced on the course of trade *through the particular rate of exchange made to prevail by an excess of exports on the one hand, or by an excess of imports on the other.* As we will remember from the chapter on Credit Exchange, the means of payment (the medium of exchange) in foreign trade is credit, the right to claim money in other countries,—*exchange,* as it is technically named. It follows that the export dealers of any country will have such exchange to sell; while importers will need to buy such exchange. As a consequence, a falling rate of exchange will tend to lower the profits of exporters, since the exchange they have to dispose of brings in less; while that same falling rate will tend to raise the profits of importers, since the exchange they need to buy will come cheaper.[3] But any cause which lowers the profits of exporters and raises those of importers will obviously tend to diminish the dealings of the former and increase those of the latter, that is, will tend to diminish exports and increase imports. Finally, an excess of exports is just the cause which tends to lower the rate of exchange; since such excess means that there is more exchange offered for sale than the demand will take up. It thus appears that an excess of exports sets up a chain of causation tending to eliminate that excess: said excess makes a lower rate of exchange; which lowered rate makes exporting less, and importing more, profitable; which decreases exports and increases imports; which finally eliminates the excess of exports, that is, brings exports and imports to an equality. An analogous course of reasoning would show that an excess of *imports* must tend to disappear,—*must destroy itself.*

**Through Money Movements.**—We have seen that an excess of either exports or imports is self-destructive or self-corrective, through its influence on the rate of exchange. Such an excess is self-corrective also *through its influence on the movements of money.*[4] If a country is exporting more than it imports, the ex-

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[3] See problems 11 and 12, page 187.
[4] This topic is more fully discussed in Chapter XXXIV.

change dealers of that country will presently find themselves creditors, by a considerable balance, of the exchange dealers of other countries. Such a state of things may be allowed to continue for a few weeks through temporary loans to their correspondents in the debtor countries. But, in general, such balances are not permitted for any considerable period in international trade; and, in consequence, the continuance of an export excess soon leads to a movement of money toward the exporting country to make good the balance owing that country. Such a movement, however, presently causes the reserves of the banks to become excessive, makes borrowing easy, inflates business and buying in general, with the result that *prices in general rise.* An exactly opposite course of causation in the importing countries results in a general lowering of prices. But the raising of prices in the exporting country and the lowering of prices in the importing countries make the former an undesirable market to buy in, and the latter a desirable one. In consequence, the exports of the country having an excess of exports tend to decline while its imports from other countries tend to expand. Thus, again, an excess of exports is self-corrective. Exports and imports tend to become equal *automatically.*

Let us now embody the result of this long discussion in a formal principle as follows:

**Principle**—The Principle of Reciprocity.[5]

*Exchange between communities, as between individuals, is necessarily reciprocal; and, speaking broadly, the total of goods (not including money) sold by any community to all other communities must in the long run equal the total of goods (not including money) bought by that community from all others, save that there will usually tend to be a*

[5] The Principle of Reciprocity here laid down should not be confused with the *policy* of reciprocity much advocated and occasionally practiced in this country. The latter, as indicated, is a *policy* in the conduct of a nation's commercial relations, not a natural law governing phenomena. Further, as a policy reciprocity has its chief theoretic basis in alleged natural laws which are quite inconsistent with the Principle of Reciprocity. Most advocates of the policy of reciprocity are more or less pronounced disbelievers in the Principle of Reciprocity.

*slight excess of goods exported from communities not producing standard money metal and a more or less considerable excess of goods imported into a country producing standard money metal—it being assumed that the distribution of population among different communities remains substantially unchanged.*

## Illustrative Problems

1. "Another important reason for keeping our fleets as far as possible in our own ports is that under this policy the money they spend for ordinary supplies goes to our own people."

Explain what the writer probably meant and criticize it.

2. "To the same extent that the home market is wrested from foreigners and given to protected home producers, the foreign market is wrested from unprotected home producers."

Explain and defend the statement.

3. "When I came to Marblehead they had their houses built by country workmen, and their clothes made out of town, and supplied themselves with beef and pork from Boston, *which drained the town of its money.*"—Barnard's Autobiography.

Criticize the part in italics.

4. From a supposititious editorial of a Benton Harbor newspaper: "The annual influx of students and other outsiders into the fruit belt to engage in fruit picking and packing is an abuse which should be stopped at once. These people consume very little, saving their money to take back to Ann Arbor, Chicago, and the other places from which they came. Thus, while making large sums off us, they give little or nothing to the support of our industries." Criticize.

5. "One reason for our almost constant excess of exports is that we are enterprising and so always opening up new markets."

Objector: "Opening up new markets might increase our exports but could not increase our *excess* of exports unless somebody cheated us."

Defend the second statement.

6. Remarks of a leading Congressman when it was announced that the Canal Commission would purchase supplies wherever they could be secured most cheaply: "The President should be able to see the desirability of purchasing the supplies in this country alone, because thus

employment would be given to *American* capital and labor instead of foreign." Explain fallacy.

7. "The chief reason for our excess of exports is to be found in the fact that the things which we sell are more necessary to our neighbors than the things which they sell are to us." Criticize.

8. "The true way to quicken foreign demand (for British goods) was to open the ports to that foreign supply with which they paid us for what they bought from us."—Morley's Gladstone, Volume 1, page 267.

Show that the above is sound doctrine.

9. "If we buy rails from England, we get the rails of course, but they get our money; while, if we buy the rails at home, we have the rails and the money, too."

(a) Is there any reason to expect that our buying rails in England would carry off our regular stock of money? Explain.

(b) Substitute "cotton" for "money" throughout the above quotation, and show the fallaciousness of the doctrine.

10. "The trade of the United States shows an excess of exports, because it is a large resourceful country which has to supply other countries with raw materials." Criticize.

11. "I have always believed that free trade would secure the greatest general prosperity, provided that all countries would practice it. But, if neighboring countries are bound to maintain protection, it is only fair to ourselves to do the same."

(a) What is the real economic evil of having our neighbors shut out our goods?

(b) Would we better matters by shutting out theirs?

12. A Detroit physician who has a son in the University at Ann Arbor requires the latter to buy his clothes and other supplies just as far as possible in Detroit, on the ground that, since his income is earned in that city, it ought to be spent there.

(a) Has the father placed himself under obligations to the people of Detroit by earning an income from them?

(b) Supposing the distribution of population unchanged, would Detroit as a whole get any more employment on the one plan than on the other?

13. A Western newspaper, anxious to hinder the people of the community from buying outside, represents a silver dollar as appealing to a

home dentist about to send it to the Montgomery Ward Company of Chicago, in the following strain:

"Now, look here, Doc. If you'll only let me stay in this town I'll circulate around and do you lots of good. You buy a big beef steak with me, and the butcher will buy groceries, and the grocer will buy dry goods, and the dry goods merchant will pay his doctor bill with me, and the doctor will spend me with a farmer for oats to feed his buggy horse, and the farmer will buy fresh beef from the butcher, and the butcher will come around to you and get his tooth mended. In the long run, you see, I will be more useful to you here at home than if you send me away forever."

(a) Clear up once more the fundamental errors in all talk of this kind.

(b) Show that, even if we admit the principle implied in the quotation (that only the money spent at home can complete the circuit so as to get back to the original spender), *only a very small portion* of the dollar could get back to the dentist.

14. English people own much capital which is earning interest or dividends in other countries. What effect does this fact tend to have on England's exports or imports?

15. "If it were possible for one county to provide by law or otherwise that no dollar which came into it could be sent out, within two years the county would be so much richer than its neighbors that they would begin to wonder, etc."—Western newspaper.

(a) What do you suppose are his reasons for expecting such a policy to produce the great prosperity predicted?

(b) Show that his great expectations are unreasonable.

(c) Show that the policy in question would be likely to make the county poorer rather than richer.

16. "You admit that it would increase the productive power of a given county to have a man with one hundred thousand dollars move in, bringing his money with him. How, then, can you deny that the county would grow richer if it could and should for three or four years stop all money which came in from going out?"

Show that we are guilty of no inconsistency in admitting the one contention and denying the other.

17. The following was taken from a country newspaper in 1908: "It appears to this paper that all this severe criticism . . . of Mrs. Howard Gould's requiring $70,000 a year to pay her expenses is quite un-

called for. What's the difference, anyway? If she and her folks have the 'dough,' let them spend it as fast as they like. That's better than hoarding it. When the money is spent it goes to some one and gets into circulation. We people whom circumstances compel to live on 30 cents a day would be glad to see all the old millionaires spending each $70,000 a year on himself, or ten times that amount if he wants to. The money isn't lost."

(a) State clearly what advantage the writer of the above probably imagined that the public derive from the extravagance of Mrs. Gould and other rich people.

(b) Explain the fallacy in the doctrine.

(c) Show that the last sentence of the quotation is of no significance in the matter.

18. "The so-called Principle of Reciprocity is all rubbish. It is child's play to show that we can sell to other countries even if we do not buy from those countries. No British buyer of American goods asks the question whether America buys British goods. His only question is: 'Does this article in character and price suit me?' If so, he buys it. Further, it is a matter of common knowledge that a country will often buy a great deal from some other country, even though it sells little or nothing to that other country. Thus Germany has no better customer than England, whose goods she keeps out by tariff. So we buy largely from Brazil, though we sell her very little."

(a) State the Principle of Reciprocity.

(b) Show that the arguments against this principle contained in the above quotation have no bearing on the case.

19. "Our neglect of the South American trade is simply scandalous. We buy a large amount from Brazil every year but sell her almost nothing, leaving her markets to be gobbled up by England and other European countries. We ought to subsidize a great merchant marine running to South America, and drive Europe out of a market which is naturally ours."

Show that a very plausible argument can be made for the contention that we should be cutting off our own noses if we were to drive Europe out of the markets of South America.

20. "We are going to get from Germany an indemnity of forty or fifty billion dollars; but we are not going to let her utilize this fact to build up her industries again by exporting billions of dollars worth of goods to other countries. We shall take our indemnity in gold, not

goods." This was the sort of talk much heard in the Allied countries, particularly France, during the winter of 1918-1919.

Show that, even if the Allies were to insist on being paid in gold, this would necessitate letting Germany export billions of dollars worth of her products, it being remembered that Germany has less than $300,000,000 in gold and is not a producer of that metal.

# CHAPTER XVII

## THE LAW OF COMPARATIVE COSTS

We come now to a fundamental principle of trade which is somewhat more difficult than the two we have already considered, and yet is so fundamental as to call for treatment in this connection. It is commonly known as the Law of Comparative Costs. This principle may be looked on as a formal answer to the question: *What condition must be fulfilled to make it worth our while to cooperate with our neighbors, individual or national, by engaging in trade with them?* Not a few economists would very likely be disposed to affirm that there is really no necessity of answering the question in any other than the common-sense way. It is worth our while to trade with other communities when and only when their prices make it profitable to do so. "We can go deeper," he might say, "but we do not need to. There is no better index to the fulfilment of the deeper conditions necessary to make exchange-cooperation profitable than that given by comparative prices."

**How the Question Arises.**—This solution of our problem, however, meets serious difficulties. A great many people are convinced on personal grounds that it is not a good thing to have trade go just where it naturally would in view of price conditions; they usually want to shut out some goods which, if we had regard only for prices, we should naturally buy from other people. They find no difficulty, either, in adducing excellent reasons, of a political and social sort, why we should do this. But, in order to bolster up their cause they usually bring forward arguments which they believe to be based on fundamental economic principles. They try to seek out some reason lying behind the surface fact of a favorable price, and this reason usually concerns our ability to produce for ourselves the thing we buy as well as, or better than, the country

from which we buy it. If we can produce it more easily than the other people, we have a sure case for the wisdom of producing it ourselves. If we can produce it just as easily as the other people, the same conclusion is almost as certain. Even if we cannot produce it as easily but can only just produce it, many people are disposed to declare that we ought not to buy it from others. But these ideas are in part at least erroneous, and so the economist is forced to make a deeper analysis than would otherwise be necessary.

**Simplest Case.**—One condition under which trade between two countries would surely be profitable is that each country should be able to produce the commodity it sells at a cost which is absolutely smaller than its cost in the other country, meaning by cost, labor, waiting, and other primary factors. Thus, let us suppose that in country A broadcloth is produced at a cost of only 3 days' labor (letting labor represent all real costs), while in country B it costs 4 days'; and that, on the other hand, iron costs in country B only 16 days' labor, while it costs 18 days' in country A. That is, broadcloth is produced at smaller absolute cost in A; iron at smaller absolute cost in B. Under these conditions, we will surely believe that A will profit by using broadcloth to buy iron from B; and the latter will profit by using iron to buy broadcloth from A. But why will this be true? What is the real economic explanation of the matter? For this we need to go a little deeper.

If we look at the figures of our example from another standpoint, we note that the people of A spend only *one-sixth* as much labor on the cloth as on the iron; while the people of B spend *one-fourth* as much on the former as on the latter. But it is a commonplace of business, not yet treated in our discussion, that the comparative prices of things must show a rough correspondence with their costs of production. It follows that, in Country A, a yard of cloth would naturally be worth *only one-sixth* as much as a ton of iron; while, in Country B, it would be worth *one-fourth* as much. Or, if we look at the matter primarily from the standpoint of *iron,* a ton of this would be worth, in A, six times as much as a yard of cloth; while, in B, it would be worth *only four* times as much. In short, if each commodity be measured in terms of the other, broadcloth would be much

cheaper in A, iron much cheaper in B. It follows that B would profit by buying the cloth it wants in A, provided payment could be made in iron; while A would profit by buying the iron it wants in B, provided payment could be made in cloth. But manifestly these two desirable possibilities exactly fit each other. B wants to use its iron to buy A's cloth; and A wants to use its cloth to buy B's iron. Evidently, then, trade between the countries would be profitable under the condition assumed, namely, that each can produce the commodity it exports more cheaply than the other can produce that commodity.

**Difference in Absolute Cost Unnecessary.**—It seems probable that the most important cases of profitable trade between different countries are included under the case just considered,—each country is superior in respect to the commodity it exports and inferior in respect to the commodity it imports. But, as was long ago brought out, this statement does not cover all cases, and is in fact misleading. If we stopped here the reader might very naturally conclude that trade would pay *only* when the condition just explained was present, and that we ought never to buy a thing from other countries if we could produce that thing as cheaply as those other countries.

**Case of the Individual.**—The unsoundness of the doctrine as applied to an *individual* is at once evident. Here, for example, is a lawyer who very likely can mow his lawn, cultivate his garden, and take care of his furnace much better than the person or persons whom he hires to do these things. Nevertheless, he devotes himself to the practice of his profession, and buys the services named from other people. And he of course acts wisely in doing so, for it is plain that he gains most by *using his whole time and energy on the kind of work for which he is best fitted.* He is not interested in the fitness or unfitness of his neighbor as compared with himself, but rather in the degree in which *his own fitness in one line is greater than his fitness in another line.* So long as he can find a market for his possible output, he would better devote his time entirely to doing the kind of work for which he is preeminently fitted, and get

his supplies of other things from his neighbors, even though he can make those other things better than his neighbors.

What the lawyer cares about is not whether he can produce the thing he buys less cheaply than the man from whom he buys it, but whether he can produce that thing which he himself sells more cheaply than *he* can produce the thing which it will buy for him. In other words, what is the cheapest way for him to get shoes—to produce them himself or to produce legal services, sell these, and use the proceeds to buy shoes? It is his *comparative* efficiency in the two directions which determines his conduct. Put in another way, it is the comparative *cost to himself* of producing the two different commodities which determines whether he shall produce a given one or buy it. He naturally chooses to produce the one which has the lower cost to himself.

**Case of a Nation.**—Now, a community or nation is in this respect no different from an individual. England, let us say, produces principally cloth, getting most other goods through exchange with outside communities. England is really better fitted to produce some of the things she buys than are the people who actually do produce them, and she is, moreover, perfectly well aware of the fact.

But, like our lawyer, England, though superior to other countries in *many* respects, confines her productive efforts to the industry or industries wherein she is *most* superior. The condition which makes her desire to trade is not a certain ratio between her own efficiency and that of other countries, but rather a certain ratio between her own efficiency in one industry—put in terms of cost—and her own efficiency—put in terms of cost—in other industries.

But this alone would not make possible trade between England and other countries. These countries must also have a motive for wanting to trade. How is this possible? England, we have assumed, is superior all along the line; hence China must be assumed to be *inferior all along the line.* She is inferior in cloth, inferior in iron, inferior in potatoes. But while England, being universally superior, has a motive for trading, we must now find a motive for China, in spite of the fact that she is universally inferior.

Though not so evident on the surface, this problem easily clears itself upon a little reflection. If China is inferior to England in respect to both cloth and iron, she will surely find an advantage in specializing *where her inferiority is less.* If she is three-fourths as efficient in producing iron, and only one-half as efficient in producing cloth, it will pay her to produce iron and buy cloth. Here again the matter which the country is interested in is, not the cost of each commodity at home, as compared with the cost abroad, but the comparative cost at home of the two commodities.

Thus, both the country universally superior in production, and the one universally inferior, might have adequate motive for resorting to exchange. Before exchange could actually take place, of course, the particular exchange that is desirable for one country would have to be the same that is desirable for the other. The differences in comparative efficiency should be complemental to each other. If England is more efficient in the production of cloth than in the production of iron, while China is more efficient in the production of iron than in that of cloth, then it will be feasible for them to effect the specialization which would naturally be profitable to them; for the greater superiority of the one just fits the smaller inferiority of the other. By using its cloth to buy iron, England takes advantage of its greater superiority; while, by using iron to buy cloth, China takes advantage of its lesser inferiority.

The principle which embodies the essential points brought out above has long been known as the Law of Comparative Costs. It may be formally stated as follows:

**Principle**—The Law of Comparative Cost.

*Broadly speaking, in order to make the exchange of two commodities between two countries profitable it is only necessary that the comparative cost of the commodity exported by either of the two countries should be less in that country than in the importing country.*

**Specific Proof.**—The general argument for this principle has perhaps been developed as fully as is necessary or desirable in the explanation leading up to its statement. However, it may be well

to add a proof analogous to that just used in the case where each country was supposed to be superior in respect to the product it exported. Thus, let us change that hypothesis so as to make the cost of iron in A 30 days' labor and that of broadcloth in the same country 5 days', leaving costs in B the same as before: 16 days' and 4 days'. On this hypothesis, we shall have the same comparative values of iron and cloth in each of the countries as under the former hypothesis. That is, iron will be worth 6 yards of cloth in A, and only 4 yards in B; while cloth will be worth ¼ of a ton of iron in B and only 1/6 in A. It will, therefore, pay the people of A to use their cloth to buy iron in B; and will pay the people of B to use their iron to buy cloth in A. Thus the trade which was profitable to both under the first hypothesis continues to be so, though A is inferior, B superior, in both industries.

Before leaving this topic one further comment should be added. We have all along spoken merely of the reciprocal trade of *two* countries. As a matter of fact, most international trade is not of any such directly reciprocal character—it is *triangular,* or *multiangular.* England sells cloth to Brazil; Brazil sells beef and hides to America; America sells cotton and iron to England. At bottom, however, although a complete demonstration of the fact might prove very difficult, the cases of reciprocal and multiangular trade are substantially the same. The condition which makes specialization and exchange profitable is a difference between the comparative real costs to one country of the things exchanged and their comparative real costs to other countries.

## Illustrative Problems

1. Country A can produce pig iron at a cost of 10 days' labor per ton and broadcloth at a cost of 5 days' labor per yard. Country B can produce the iron at a cost of 14 days' labor and the cloth at a cost of 6 days' labor.

(a) What, in this example, are the comparative costs which our principle tells us must be unequal to make exchange pay?

(b) Prove in detail that, if transportation and all costs other than labor be ignored, exchange of these two products will pay.

(c) Which commodity will country A export?

2. Make a hypothetical case yourself and prove with it that exchange will not pay if comparative costs are equal.

3. "We may often by trading with foreigners, obtain their commodities at a smaller expense of labor than they cost the foreigners themselves."

(a) Show with illustration that this is true.

(b) Show how such a trade could be profitable to the foreigner.

(c) What do you suppose is the ultimate cause which explains the fact that such trade can be profitable?

4. "We know that England can make ships more cheaply than we can, and so we should let her do the ship building and turn our capital to such things as we can do better than she can."

Assuming the conclusion—that we should turn our capital to other things—to be correct, the reason given for it is not entirely satisfactory. Explain.

5. "It seems probable that Southern California would be very foolish to devote itself to raising wheat even if it could raise twice as much wheat per acre as any other district in the world." Why?

# CHAPTER XVIII

## SPECULATIVE TRADING AND INSURANCE

In this chapter we purpose to comment briefly on two forms of economic activity a knowledge of which has not seemed quite essential to the development of our study, but which, certainly, we ought not to ignore altogether. These are Speculative Trading and Insurance.

**Risk-Bearing a Necessary Function.**—It must be manifest by this time that risk, the risk of loss, both physical and economic, is an ever-present element in economic life. There is constant danger that goods shall undergo physical destruction or deterioration, and danger that the value—the economic significance—of goods shall decline. Now these risks, being ineradicable elements in economic life, individuals, or society as a whole, must in some way bear them. As has already been brought out again and again, a large number of the risks incident to productive activity are borne by the central figure in production, the entrepreneur. It has indeed been maintained by some writers that not only the entrepreneur's greatest, but his only, function is the assumption of the risk of production. The position on this point taken in the present text has been somewhat less extreme. We recognize that the assumption of the responsibility of production involves some other burdens as well as risk-taking, including some very general types of labor. Nevertheless it must be admitted that the chief part of the entrepreneur's task or function is to bear risk.

**Types of Risk.**—Again, as has been explained in other connections, risks are chiefly of two types: (1) those which regularly recur and so are calculable and (2) those of irregular nature which cannot be reduced to any law of recurrence. The entrepreneur's

function in risk-bearing is especially connected with the second type. But he is not the only one who contributes to the bearing of this burden. In fact, no economic person can be completely rid of it; and one person especially, the man who engages in speculative trading, shares in it very largely. Our first section, therefore, is given to an account of speculation or speculative trading.

## I

## Speculative Trading

**Nature of Speculation.**—The nature of speculation can best be realized by contrasting it with related functions and operations. As already noted, speculation is akin to the function of the entrepreneur in that it assumes non-calculable risks. It differs, however, in that it frequently divorces this assumption of risk from ownership; whereas the distinctive mark of the risk-bearing of the entrepreneur is that he assumes that burden by the process of *becoming the owner* of the goods. He assembles the various productive elements necessary for bringing a commodity into existence and accepts the responsibility from first to last, including the ownership of the products when completed. The speculator in the narrow sense does not necessarily do this; in fact, a very characteristic feature of his trading is the cutting apart of these two functions. Thus men who purchase wheat in large amounts and store it for sale at a future time commonly turn over to someone else the burden of bearing the risk of possible loss between the purchase and the sale of such wheat by selling against it other wheat for future delivery.

**Speculative Trading and an Ordinary Business.**—Again, speculative trading is distinguished from ordinary or so-called legitimate business in that it expects to make a profit out of *changes* in the prices of commodities in the same market; whereas ordinary trade expects to get its profit out of price *differences* in different markets. To illustrate, the speculator in wheat on the Chicago market buys wheat today expecting to sell it *at a later date* in the same market when *the price shall have advanced.* He very likely sells to another person like himself who deals in the goods for the same purpose

of making a profit through purchase and sale. In contrast with this we have ordinary or legitimate trading when a commission house buys wheat from someone really having it for disposal and sells that wheat, not to some other dealer, but to a miller who wishes to turn it into flour. That is, he buys in the wholesale dealers' market and sells in the millers' market. Between the prices of these two markets, there is a recognized and admittedly legitimate difference *at the same time*. This difference is the source of the profit to the dealer. Another way of characterizing legitimate or ordinary trade is to say that it carries the goods forward one stage on the way from the original producer to the ultimate consumer; whereas speculation merely tosses it back and forth between dealers at the same stage,—the wholesale market stage.

It ought, perhaps, to be added to the above account of this matter that some admixture of speculative trading is often present in ordinary business or at any rate may be so present. Ordinary dealers of speculative temperament will every now and then load up with an unusually large stock of some commodity, the price of which, in their opinion, is likely to advance. This is in the strictest sense speculation, not what is commonly called legitimate business.

**Speculation and Gambling.**—We have distinguished the risk-bearing of the speculator from that of the entrepreneur and his type of dealing from that of the ordinary trader. We need also to distinguish speculation from *gambling* with which it is often identified. Gambling, as pointed out in other connections, has, from the economic standpoint, this distinguishing mark: it involves the assumption of a *needless* risk. In many cases the risk is created for the occasion. For example, the gambler throws a pair of dice out of a box, betting on which side will turn up. On the other hand, gambling may take place in connection with chances which naturally exist, for example, in the outcome of some notable series of events, an election or a war. But although the chance is here of natural origin, the assumption of economic risk with respect to that chance is not of natural origin. It is entirely artificial. It is, for the moment, uncertain whether Mr. Cox or Mr. Harding will be elected; the uncertainty, the chance, is here anyhow; but I am not

driven to assume any economic risk in connection with this uncertainty. In contrast with gambling, speculative trading not only involves inevitable uncertainty and chance, it also involves a necessary economic risk. The price of wheat may change between September and March. In fact it is practically certain to change. No man experienced in such matters will anticipate the recurrence of precisely the same price six months from date. This element of uncertainty or chance must necessarily entail loss to someone. If it should be a fall, the present owner will lose; if it should be a rise the persons who will need to purchase the wheat will inevitably lose. *Speculation is, therefore, not gambling, but, within limits, the performance of a necessary economic function.*

**Characteristics of Exchanges (Bourses).**—The most thoroughgoing forms of speculative trading are carried on in special markets, of which the wheat, cotton, and stock exchanges—called bourses on the continent of Europe—are the most conspicuous examples. These markets have as their most notable characteristics the following:

(1) Trading in common. The majority of the dealers taking part are brought together in one place at the same time; buyers competing with buyers and sellers with sellers.

(2) Another characteristic is open-trading. There is no privacy as respects the dealings. The amounts, prices, and so on are at once announced and recorded by the proper officers.

(3) The trading is through official dealers, brokers, as they are ordinarily called.

(4) The dealings are usually on a very large scale.

(5) The major part of the trading is speculative. There is, of course, some selling by persons who have produced the goods and brought them to the market for disposal, and so there are some persons who have come to the market to buy for actual use outside. This last is illustrated by men in the milling district who purchase their wheat supply in large amounts at these exchanges. But the major part of the dealings, probably more than 90 per cent of them, are carried on by men who are engaged in speculation as such. By this is meant that they are not, if buyers, intending to make any

use of the product, while, if sellers, they are not producers or ordinary middlemen who are bringing the goods to market. What they are doing is attempting to make a gain, if buyers, by getting at one price and presently selling at a higher one. If sellers, they have already purchased at a low price and are now reaping the gain resulting from the advance. Or they may be selling for future delivery, agreeing to deliver the goods at some future date, confident that they will be able to make the necessary purchases at the time of delivery at a lower price than that agreed upon.

(6) This last statement suggests another characteristic of *produce* speculative trading, namely, dealing in futures. By this is meant nothing more than contracting to deliver or to accept at some future time a quantity of goods at a price now agreed upon. Such contracts for future delivery are of course present in all lines of business. We order a suit of clothes, we order wood, or coal, to be delivered at some future time; the contractor orders structural steel and lumber in advance of the time when he will need it. But the future trading of the speculative market differs from these cases in that it is not something occasional, growing out of a special need of the consumer or producer, but is systematically and constantly entered into for the sake of the possible profits to be obtained, or for some other ends which will be explained in a moment.

**Technique of Speculative Market.**—It may contribute to our understanding of this matter to note some of the technique of the speculative market. As stated above, the dealers directly concerned in the processes of buying and selling are known as brokers, and they are constantly taking and fulfilling orders. (The brokers, however, are usually supposed to refrain from personal dealings, and to buy or sell only on the account of other persons.) The real dealer in the transaction is commonly some outside party, perhaps located in a remote city.

Some of the dealers on the market habitually deal with the expectation of making a profit from a rise in prices; that is, they buy today with the intention of selling later when prices have advanced. They are known as *bull* speculators, or simply bulls. In contrast, some dealers habitually anticipate and deal with an eye to a fall in

prices. Such dealers sell for future delivery,—"go short," is the expression frequently used. They agree to deliver certain goods which they do not at the present moment own. Dealers of this type are known as *bear* speculators, or simply bears.

A special feature of short selling on the stock market is the *borrowing of stock*. On most stock exchanges, in this country at least, the rules require the delivery of the stock sold within twenty-four hours. By hypothesis, however, the dealer is not in possession of that stock. It, therefore, becomes necessary that he should borrow from those persons who do own the required stock. As a rule, he has no difficulty doing this because the owners are glad to be released of the burden of interest-bearing which ownership involves. Circumstances may arise, however, under which the demand for stock to deliver on short sales is so great that it is practically impossible to find enough stock to meet the emergency. The result in this case is a crisis to the bears in which great sums are lost.

**Marginal Trading.**—Another bit of technique of importance is the so-called *margins and marginal trading*. Everywhere in business life there is dealing on borrowed capital. Probably the majority of traders in all highly-developed countries depend on the capital of other people for a considerable part of that which is needed in their business. They borrow outright from capitalists on personal notes, or they meet any particular bill from wholesalers by raising a special sum for that emergency. *Essentially* the case is no different in margin trading on exchange. That is, the purchaser wishes to buy five hundred shares of Pennsylvania stock and has not more than a tenth of the capital necessary to do so. He naturally desires to borrow the rest of the money needed from someone else. This is particularly easy in stock transactions or speculative transactions generally for the reason that the security is readily realized upon and very efficient machinery for facilitating the process has been built up. The man who wishes to make such a purchase, therefore, deposits with his broker that portion of the purchase price which he himself expects to pay, authorizing the broker to borrow the rest of the money needed. The sum which he deposits with his broker

to cover his part of the money advanced is called a margin and trading of this type is known as marginal trading.

As explained above, this borrowing is in essence no different from borrowing in other lines of business. In practice, however, it is a more dangerous type. This is partly, of course, due to the more dangerous character of the business. In addition, the facilities given tempt dealers to go into the speculation on a much larger scale than their own capital will warrant. It is always provided that the broker can dispose of the stock he holds as security for the loan whenever his client fails to maintain his margin, and this of course makes that broker perfectly willing to lend to the limit of reasonableness.

The last remark suggests two or three other technical phrases employed in speculative trading. To keep up one's margin is to send in more money if at any time the change in the value of the stock makes the previous margin inadequate. So when the broker realizes on the loan he has made by selling the stock of his client he is said to *close him out.*

**Functions of Speculative Trading.**—We have seen that speculative trading is one of the several methods by which the risk burden incident to all economic life is borne.[1] And this risk-bearing naturally would be thought of as the primary function of speculative trading. A second, perhaps equally important, function is *maintaining conditions for the determination of the right price.* Let us now consider more carefully these two functions in detail.

**The Risk-Bearing Function Illustrated.**—The way in which *speculation carries out its primary function of assuming the burden of risk-bearing* is best illustrated in the wheat business. As already remarked, it is inevitable that there should be losses unmerited and gains unmerited from changes in the price of any commodity from one part of the year to another. Further, there will be persons in the community who are not fit to assume this burden, although so situated that they will be forced to do so unless some device is

[1] From the standpoint of society at large it is a cheap and efficient method of bearing these risks.

created whereby the burden can be unloaded. Thus, millers must have wheat, and they must buy it considerably in advance of the time when they can market the flour made from that wheat. But in the interim the price of wheat may fall greatly and as a result the price of flour will fall. The millers will therefore be liable to a serious loss growing out of this possible change in prices.

It might be argued that this is only one of the inevitable burdens of their particular function in industrial life and so they ought to bear it without murmur. A very characteristic feature, however, of modern industrial life is extreme specialization,—the working out of devices whereby the different burdens of productive activity can be separated and assigned to different agents. Now the miller has as his primary function the *turning of wheat into flour*. It is his performance of this service that entitles him to a living. He has no ambition to speculate in wheat as such, to make a living by *dealing in this commodity* so subject to changing prices. He would therefore be glad to utilize some device whereby this part of the burden would be thrown onto someone else.

The wheat exchange fills his need exactly. He wishes to buy, let us say, ten thousand bushels of wheat to be turned into flour in the course of the next few months. Accordingly, he gives an order to a broker on the Chicago exchange for that amount of cash wheat, that is, of wheat to be delivered at once. At the same time he orders the broker to sell for *future delivery* at the date when he expects to have his flour ready for the market, ten thousand bushels of wheat,—the price being fixed at the present moment, in relation to the present price of cash wheat. In the fall of the year this will mean a higher price for future deliveries because of the cost of storing, insurance and interest on the investment. Now when the future period comes he will get for the ten thousand bushels of wheat the price agreed upon anyhow. If, in order to meet this sale that he has made, he has to pay a higher price than was anticipated, he loses on the deal, but makes a corresponding amount from the advance of his flour. On the other hand, if at that time he is able to buy in the wheat for delivery at a lower price, he gains on this future deal, but loses on the flour which has fallen because of the fall of wheat. In short, the net resultant of the whole transac-

tion is that he neither gains nor loses by changes in the price of wheat. He is thus limited to what he calls legitimate business, the milling business, the turning of wheat into flour. Out of that he makes his living and leaves other people to speculate in wheat. It will contribute to a better understanding of this explanation to follow an imaginary transaction in detail.

Let us suppose that our milling company sets out to supply itself with wheat at a time when that grain is quoted for immediate delivery at $1 and for future delivery at $1.04. Our problem, then, is to determine by experiment what the result will be when the transaction is quite ended for each of the different possibilities as to the price actually prevailing when the future deal is consummated. Manifestly, these possibilities will be covered by three hypotheses: a price at the future date exactly equal to the expected one, $1.04; any price higher than the expected one, say, $1.10; and any price lower than $1.04, say, $.90. The three tables following give the results for these three hypotheses in their order. Each time the net result is neither gain nor loss.

TABLE 1

| CASH WHEAT | | FUTURE | |
|---|---|---|---|
| Original cost | $10,000 | Cost | $10,400 |
| Storage, insurance, etc. | 400 | | |
| Total cost | $10,400 | | |
| Value | 10,400 | Selling value | 10,400 |
| Gain or loss | $00,000 | Gain or loss | $00,000 |

TABLE 2

| CASH WHEAT | | FUTURE | |
|---|---|---|---|
| Total cost | $10,400 | Cost | $11,000 |
| Value | 11,000 | Selling value | 10,400 |
| Gain | $ 600 | Loss | $ 600 |

TABLE 3

| CASH WHEAT | | FUTURE | |
|---|---|---|---|
| Total cost | $10,400 | Cost | $ 9,000 |
| Value | 9,000 | Selling value | 10,400 |
| Loss | $ 1,400 | Gain | $ 1,400 |

### Illustrative Problems

1. A Liverpool miller buys through a Dutch commission house 30,000 bushels of wheat, paying 93 cents a bushel, and at the same time sells 30,000 bushels for May delivery, the price being 95½ cents.

(a) Assuming that 2½ cents covers the cost (storage, insurance, and interest) of carrying the wheat from the date of purchase till May, show that the miller will lose nothing on the wheat even if by May the price should fall to 70 cents.

(b) Would he gain if the price should rise to $1.10? Prove.

(c) What did the word "carrying" in the second sentence of the problem mean?

2. "One of the most important functions of speculation is to *hasten* the working of the processes whereby production is adjusted to fluctuating demand." Explain how speculation does this.

**Speculation and Right Price.**—We have explained the primary, central function of speculation, the assumption of the risk burden of a particular type of economic activity. The second of the two functions mentioned above—*working out a proper price*—must be commented upon briefly. As already so often remarked, price is pre-eminently regulative mechanism of the present economic order. And we mean by *right price* that price which will regulate economic activity in accord with the demands of the situation as a whole. Now it is manifestly of the utmost importance that the right price should prevail. If there is likely to be a diminution of the acreage put into wheat because of the outbreak of the great war it is highly important that something should happen to induce countries unaffected by the war to increase the amount of wheat which they raise. But of course nothing can contribute so effectively to this result as an advance in the price of wheat, and that an early advance. But again nothing can so surely bring about this much-needed result as the efficient working of a great speculative market.

In these great markets we have a large number of competing dealers on both sides, men of exceptional capacity, keenness, and knowledge, furnished with every facility for getting information regarding the probabilities of demand and production in all parts of the world. In consequence, if there is good reason to believe that

prices should naturally change, that the conditions of demand and supply will create in the near future a much higher price, that higher price is likely to be brought into existence much sooner, much more completely than without such a market. This was exactly what happened in the summer of 1914 at the outbreak of the Great War. It happened again in the summer of 1916 when the failure of the new crop was in prospect, and it was just what ought to have happened, although it was constantly misinterpreted and lamented by men in power who were too little informed with respect to the working of economic laws. The sharp advance in the price of wheat meant that the farmers who could produce winter wheat, which was to be sown in the fall of the year, would promptly improve their opportunity, would proceed to increase the acreage as rapidly as possible. A rise in price which had waited for months till after the consumer began to feel it clearly, would have been too late to bring the needed result. An advance in price brought about early, before any but the trained and well-informed speculator could anticipate the whole result, was just the thing which the situation called for.

## II

## Insurance: Its Nature and Functions

**Nature of Insurance.**—The essential nature of insurance consists in the pooling, putting into one mass, of a large number of risks. In other words, the many persons interested act, for this particular purpose, as if they constituted just one person. Thus, if the individual owners of a thousand houses desire to insure themselves against loss by fire, they proceed to act in the matter as if all the houses were owned by them as a group. If any house burns down, the group replaces it by contributions raised from all members of the group. Otherwise the houses are treated as if owned by individuals, but in this respect they are treated as if owned by the group.

Now the *function* of this economic activity, this industry, if you please, is readily seen by considering the advantage derived from the practice indicated. If, in the illustration, we suppose each house to be worth $2,000, then without such pooling as insurance pro-

vides, the burning of one of these houses would mean a *total* loss to the owner, a loss of $2,000. On the other hand, if pooling takes place, the result of the fire is that each owner loses $2. The advantage of such a procedure, supposing only a few houses burn down, is manifest. Each owner is, indeed, obliged to lose something. But this amount is quite small and in exchange for it he is saved from the risk of losing his whole $2,000. In other words, the individual's advantage from insurance may be summarized as the substitution of a series of small, though certain, losses for the chance of a great loss.[2] But this means that insurance makes less burdensome to the individual the risk incident to economic ownership. Accordingly, the function of insurance is to secure the *easier bearing of risk.*

**All Insurance Mutual.**—The preceding account seemed to deal only with what is called mutual insurance,—insurance in which the parties insured are responsible for the procedure, manage the whole business. But most insurance, as we know, is not technically of this character. Instead, it is undertaken by a great corporation which "sells" insurance, as the agent would say, as other corporations sell gas and electricity. Has our account covered this case? Surely, yes. In essence, all insurance is mutual. The fund from which the company makes good the losses to householders whose houses burn in reality comes not from the company, but from all the householders. If these were not making regular payments adequate to cover the total losses of the group, the company would have nothing to pay. The only difference between this case and that of strict mutual insurance is one of management, procedure. In the latter, the insured householders organize to manage the business themselves, accepting all the responsibilities and burdens. In the former case, speculative insurance it is often called, a corporate entrepreneur undertakes to carry out the plan, assume all the responsibilities, and do the necessary work. The essence of the matter, as before, is the

[2] This surely is a social as well as individual advantage. The strain upon industry, the loss of efficiency due to the falling of a great loss upon a single individual is much greater than that of a trifling loss experienced by many individuals.

pooling of risks, the acting as one owner in respect to the burden of ownership.

It should be said also that while the foregoing account of insurance dealt only with loss from fire, an exactly similar analysis would fit the case for insurance against any type of economic loss, for example, cyclone, shipwreck, collision, etc.

**What Risks Insurable.**—The last remark suggests that we need some comment on the question: Under what conditions is the insurance principle, the principle of pooling risks in order to diminish their economic burden, applicable? The answer is this: the insurance principle can be used wherever risks are fairly *calculable.* If we can prove statistically that, when any large body of losses are taken together, the per cent of loss is only moderately high, and fairly regular, insurance is feasible. Doubtless this is a somewhat vague rule; but it has answered in the building up of great businesses. With the improvements in statistical art, and the enlargement of the pools, it has been possible to extend the operation of this industry more and more widely; and doubtless we have not yet seen the end of its development.

**Life and Endowment Insurance.**—Thus far we have had in mind only insurance against direct loss, for example, fire insurance, tornado insurance, burglar insurance. But the student is aware that very important forms of insurance are so-called *life* and *endowment* insurance. Are these to be explained in the same way? In the main, yes. In one respect, however, they obviously differ from the cases already considered. The payments made to the insured or his family are not intended to cover losses incurred. They rather represent savings, accumulations of capital, which he has made or is treated as having made. The payments which the insured makes to the officers of the association or company—premiums—consist, in the cases already considered, of two parts, (1) a real insurance premium, his share of the losses incurred, and (2) his share of the costs of carrying on the business. In life or endowment insurance, the major part of the payment is different from either of these. It is *savings deposit,* money accumulated and placed in the

hands of the company as if it were a savings bank. The insurance element in his payments is so much as is needed to cover the risk that he will not live and save long enough to accumulate the full amount he has set out to save and for which he is insured. The insuring company or association is concerned with knowing how many payments he is likely to make,—which is usually the same as saying how many years he will live. Their statistics concern the average longevity of men in his class; the statistics of the companies concerned in fire insurance concern the probable number of houses of certain types which will burn in a given period.

Within the memory of people still living, not a few persons of intelligence and standing were wont to look on insurance, particularly life insurance, as a form of gambling.[3] What has been said ought to convince us of the unsoundness of this opinion. Insurance manifestly performs a very real service. It does easily and cheaply *something which must be done.* Risk cannot be eliminated from economic relations. It must be borne. Our only freedom of choice concerns the *method* of bearing it. Insurance is surely the best one yet devised.

## Illustrative Problems

1. Suppose 1,000 owners of 1,000 buildings worth each $7,000 wish to insure themselves against fire. If the risk for the class of buildings involved is such that 7 out of 1,000 burn down each year, what annual payment from each owner would be necessary to insure all against total loss,—expenses of management, interest, etc., being ignored?

2. Suppose 1,000 persons propose each to save for his family before his death, $2,000. All are twenty-five years of age. Knowing that anyone is liable to die before he has had time to save so much, they combine to insure one another that $2,000 shall be ready for the family even if death comes before that sum has been regularly accumulated. Assuming that the organization is continuous, new members joining as old ones

[3] In one notable case, the spirit and even the practice of gambling has not been kept out of connection with legitimate insurance. This is the great Marine Insurance Association known as Lloyds of London. Here men are able to put up bets on any conceivable event without any admixture of necessity or social gain to make it a legitimate economic operation.

pass away, and, assuming the average death rate to be 18 in 1,000, what annual payment would each one need to make,—expenses of management, interest, etc., being ignored?

3. Suppose that a certain corporation owns 500 buildings worth each $100,000; that to insure in an ordinary company would cost the corporation $250 a year on each building; and that the corporation is convinced that by an annual expenditure of $10,000 the fire loss can be reduced to an average of one building every three years. Under these conditions, would it pay the corporation to insure with some company? Prove.

# CHAPTER XIX

## VALUE AND PRICE: PRELIMINARY

With the present chapter we begin the study of value and price, a topic which, as indicated in an earlier connection, constitutes the very heart of economic science. This topic will continue to form the subject of our study during the seven chapters following—in fact, it will receive much of our attention throughout the remainder of the text. In this chapter we shall confine ourselves to some preliminary topics.

**Economic Value.**—The fundamental idea which in this text is usually attached to the phrase "Economic Value," and not infrequently to the word "value" standing alone, was brought out in our opening chapter. Economic value is the property of having *definitely mensurable and effective worth,* the property of making the thing to which it attaches conduct-determining in a definitely mensurable fashion. As thus conceived, the word does not carry any suggestion of power in exchange.. From our present point of view, the latter property is only a manifestation of economic value in the more fundamental sense. Economic value, as thus understood, would be present in the economic life of a Crusoe, though exchange, and so exchange value, would be completely shut out by the circumstances of the case. For the same reason, this would also be the conception of economic value appropriate to a communistic system of economic organization.

In our study of the present economic order, we need this deeper conception of economic value to help us both in getting a more adequate comprehension of exchange value and in supplying ourselves with a standard for judging whether or not the present system of price determination is working properly. For this second purpose, however, we need the broader concept of value as modified

by the adjective "real." By *real value* we mean the value attaching to things in view of all the fundamental facts of the situation,—momentary, accidental elements being ignored. It is the value which most persons would say *ought* to be embodied in the actual prices of the market, though all would agree that this result is seldom or never precisely attained. It may also be conceived as the value which the government of a communistic order would endeavor to make their guide in regulating the economic action of the community, in trying to insure that the productive resources at their disposal were utilized to the very best advantage.

**Valuations.**—When any person comes to realize that his welfare is dependent upon the possession of particular units of any good, that is, when he realizes that each unit of such a good has effective importance for him, he inevitably comes to take a certain psychological attitude toward it, he prizes it or sets store by it.[1] Further he estimates the degree to which he prizes it, the degree to which it seems to him important, essential to his welfare, in terms of some measuring unit, usually money. This process we call evaluation; and the estimates themselves, we call *valuations*. These valuations, obviously, must play a very important part in the processes by which value or price is determined, if the desires of the persons who are to consume goods are to be taken into account. As we shall see in a later chapter, these valuations vary with the quantity of the commodity in question which the person interested conceives himself to have in possession; and these different valuations, corresponding to differences in quantity, together make up what we call his valuation schedule, which in turn helps to determine what we call his demand schedule.

**Price.**—This concept of valuation brings us to another of very great importance in this connection, *price*. The valuations of the buyer's schedule, looked at as sums of money which he is in effect offering to pay for the goods in question, are prices. That

[1] The property or state of being thus prized is sometimes designated *subjective value*.

is, a price in this connection is a sum of money which is being offered for a unit of the goods under consideration. This concept, price, also appears when we approach the matter from the standpoint of those who wish to *sell* the commodity in question. That is, price includes the idea of a sum of money for which sellers actually offer to exchange a unit of some given commodity. Again, we apply the designation, price, to the sum of money which *actually passes from buyer to seller* in a specific transaction. In all these three cases, there is reference to *an actual transaction,* though in the first two cases, the transaction is *merely contemplated, not consummated;* and, in most good usage, this reference to an actual transaction, contemplated or consummated, is an essential element in the concept. For example, if, in speaking of a particular object, say a residence, we have in mind nothing more than what informed persons would consider *its real worth,* a *reasonable* price for it, we say that its *value,* not its price, is so and so. We speak of the *price* of that residence only when we are thinking of a figure at which the owner has offered to sell it, or at which someone has offered to buy it, or at which it has actually changed hands.

A further mark of price is that it is concerned with a single conventional *unit* of the commodity, not with an aggregate. We speak of the price of a *bushel* of wheat; but not of the price of the wheat crop of the United States. For this latter purpose, the term *value* is used, and means simply the price multiplied by the total number of units.

### Illustrative Problem

It is not uncommon to find in economic textbooks the statement that price is exchange value expressed in terms of money. Do you suppose that the author of such a text would say that the annual gold product of the United States has a price of ninety million dollars? How would he probably express the fact?

**Exchange Value.**—A fourth concept which seems essential to an adequate theory of value is exchange value. By this we mean the property belonging to economic goods of being able to command in exchange other economic goods. Though, as already remarked,

this is really no more than a special manifestation of economic value in the fundamental sense, under the present order it is characteristic of practically all economic goods, and, therefore, is most usually in our minds when we employ the word value alone. Thus, in interpreting the antithesis brought out under the last heading between value and price, we ought probably to understand by value, not the fundamental concept explained under the phrase "economic value," but rather exchange value. For example, when the statistician says that the value of the corn crop of 1900 was seven hundred and fifty million dollars, we understand this to mean that this sum was what the crop of two billion bushels would presumably have brought on the market, a particular price being assumed for the purpose of making this computation.

**The Scope of Value Theory.**—The chief general task of value theory is to ascertain *the causes and principles which regulate value and price,* though it is usual also to give considerable attention to *the origin* of value and price. In this text, comment on the latter topic is chiefly incidental. The problem of value and price determination, taken by itself, is of very broad scope, including much more than we can hope to cover. In fact, one might say with propriety that a really complete theory of value would consist of a group of theories, each devoted to the topic developed in one special way. For example, it would be very natural to undertake to work out (1) a theory of *real* values from the standpoint of the *individual,* (2) a theory of real values from the standpoint of *society,* (3) an *abstract* theory of *competitive* prices—prices under an order of free private initiative like the present one, (4) a *concrete* theory of competitive prices under the present order—prices as they actually work out under the present order, (5) a theory of values under communism, (6) a theory of prices under a socialistic order, and so on.

As a matter of fact, traces of all the types of theory specifically named above are present in most economic treatises, though often probably without clear recognition by the author himself. The particular one of these which avowedly occupies the principal place in economic texts is the third, *the abstract theory of competitive*

*prices,* though this is usually preceded or accompanied by discussions belonging under the first theory. Incidentally, the second, the theory of real social values, receives some attention, particularly when the author is trying to pass judgment on the satisfactoriness of the present economic order. The fourth point of view is implicit in the comments usually made with respect to discrepancies between the working of things as represented in the abstract theory of competitive prices and their actual working. In like manner, notions belonging to a value theory for communism or socialism not infrequently appear in the course of a discussion of our present topic. As noted above, however, the major part of the conventional treatment of our present topic belongs to the third type of value theory, that is, the abstract theory of competitive prices; and this statement will be true of the present text.

**The Abstract Theory of Competitive Prices.**—By an abstract theory of competitive prices, we mean a theory which confines its attention to a few of the major causes and conditions at work in a competitive society like ours, and, on the basis of these, works out a body of principles with respect to the determination of prices in such an order when perfectly realizing the conditions proposed. It should be added that this type of value theory is not only abstract, in that it limits our attention to a portion of the causes and conditions present; it is also hypothetical, in that it assumes a greater degree of uniformity in the forces and conditions which it retains than actually exists in the real world.

As already indicated, the treatment of value in the present text follows this conventional line. That is, the main discussion will be concerned with the abstract theory of competitive prices, and that even more completely than is usual; but matters belonging to other bodies of value theory will appear at various points.

**Definition of Market.**—A concept quite necessary in the study of value or price is represented by the word "market." By this we mean a *totality constituted by a group of freely and directly competing sellers or buyers over against a coordinate group of freely and directly competing buyers or sellers.* Here are some careful ex-

planation is needed. The phrase "directly competing" in the above definition is intended to bring out the idea that the sellers or buyers of a given commodity, say, coffee, are not all members of the same market. Thus, the importers of coffee, the jobbers distributing it to retailers, the retailers selling it to consumers, though all sellers of coffee, do not *as sellers* belong to the same coffee market. The first belong to the coffee market constituted by themselves as sellers and the jobbers as buyers,—the importers' market. In turn, the jobbers, looked at as sellers, belong to the market constituted by themselves as sellers and the retailers as buyers,—the wholesale market. In turn, the retailers, as sellers, belong to the market made up by themselves as sellers and consumers as buyers,—the retail market.

The above statement must not of course be understood as denying that the sellers in the importers' market have an influence on the price of coffee in the wholesale market, or that the sellers in the wholesale market have an influence on the price in the retail market. On the contrary, in each case, such influence is very great or even decisive. This influence, however, is only *indirect,* being affected through the buyers in the particular market under consideration, who in turn become sellers in the next market. Thus, jobbers, though not members of the retail market, influence the price in the market by helping to determine the price at which retailers are willing to sell. This way of looking at the matter explains the phrase in our above definition "directly competing." That is, the sellers or buyers who are *directly* competing in any particular market form a part of the group of sellers or the group of buyers who truly belong to that market.

The preceding explanation with respect to the distinction between the buyers or sellers of a given commodity in one market and the buyers or sellers of that commodity in another market, shows the necessity for the phrase "coordinate group" which appears in our definition. The only proper course, surely, is to combine the selling group of the importers' market with the buying group of that same market, not with the buying group of the wholesale market nor with that of the retail market.

It should be noted that the above definition of market omits any reference to a specific *place.* Though a market usually has a

location, the really essential element in it is rather a threefold set of *relations:* (1) those among the sellers, (2) those among the buyers, and (3) those between the two groups over against each other. If men in Chicago, Detroit, and Duluth are freely *competing with each other in selling wheat to the same general group of buyers,* they belong to the same market though located in widely separated cities. On the other hand, if two persons living in the same city and both selling coffee are after all dealing with different groups of buyers, they do not belong to the same market. Thus, Mr. Forsyth, a resident of Poughkeepsie, who sells to jobbers coffee which he imports from Brazil, does not belong to the same market as Mr. Sanders, another resident of Poughkeepsie, who retails coffee to consumers in that city.

**Competition.**—In an earlier chapter we made some reference to competition, defining it in a general way as the striving for the same prizes, the pursuit of the same opportunities, by similar units. It is not necessary to repeat any large part of those earlier comments; but, in view of the fact that competition comes to a focus, so to speak, in the field with which we are now concerned,—the determining of prices—it seems desirable to introduce one or two comments here.

**Competition is between Units of Same Group.**—First, let us once more remind ourselves of one of the most fundamental features of true competition, namely, that, as in all cases of true rivalry, the competing persons *must function in the same general way.* Buyers are competing with other buyers, not with sellers; sellers are competing with other sellers, not with buyers. The applicants for a job with the Michigan Central Railway Company are competing with one another, not with the railway company. So the railway company is competing, not with the applicants, but with other employers of such types of labor. Doubtless the successful applicant and the company will each try to gain some economic advantage at the expense of the other,—the applicant to get higher, the company to pay lower, wages than the market justifies. But this antagonistic striving is not competition. It belongs rather to

another line of action, namely, *bargaining,* the process through which seller and buyer come to an agreement.

**Involves Action of Opposite Group.**—A second comment with respect to competition which it seems desirable to make is that, in a sense, full competition on the part of the persons belonging to either group—buyers or sellers—really involves some action on the part of the members of the other group. Strictly speaking, the competition of sellers is only partial, not truly complete, unless every seller really gets his bid or offer before every buyer. So the competition of buyers is not complete, unless every buyer gets his bid or offer before every seller. Since the utmost effort on the part of sellers would never suffice to get their offers before all buyers, unless the latter did something to help in the process, we may say that competition could not be even approximately complete, unless the buyers contributed to the result. So, since the utmost probable effort on the part of buyers could scarcely suffice to get their bids before all sellers, unless the latter did something to help in the process, competition on the buyers' side could not be complete, unless sellers contributed in some degree to the result. In other words, complete competition within either group requires that there shall be alertness, openness of mind, and enterprise in the opposite group.

**Assumptions.**—The abstract and hypothetical character of value theory has already been remarked. We start with a few assumptions respecting the causes and conditions present and respecting their uniformity of action; and, on the basis of these assumptions, work out a body of doctrine with respect to the processes and principles by which prices are determined. Let us now give a moment to comment upon the assumptions which are actually employed by the economists in connection with this task.

**A Purely Economic Individual.**—We assume, first, that each man taking part in the exchange process is an ideal or perfect economic man. His feelings and motives are predominantly, if not wholly, concerned with getting the maximum of satisfactions for himself, and they consistently remain so from day to day and year

to year, all other motives such as charity and sympathy being shut out. The man has also full knowledge of market conditions and excellent, not to say perfect, judgment in making decisions. And his actions are entirely free of caprice, passion, and prejudice, so that he would naturally buy always in the cheapest market and sell in the dearest.

**A Perfect Market.**—The assumption of a perfect economic man naturally carries with it the assumption of a perfect market where the man's operations are performed. In this market every seller is supposed to be successful in putting before every buyer the particular opportunity he is offering, and every buyer is supposed to be successful in putting before every seller the opportunity which his desire to purchase creates. In other words, perfect competition is present in such a market. The most essential features of such a market would be, first, extensive and efficient means of gaining information and disseminating it among buyers and sellers, and, second, conditions favorable for allowing men to act rationally on the information received. Finally, this perfect economic man in the perfect market is supposed to carry the principle of competition to its logical conclusion—to continue competing so long as there is a surplus of immediate economic advantage over the sacrifices made.

**Perfect Competition Is Not Unlimited Competition.**—At this point, however, it is important to note that the perfect competition of economic science does not involve the idea of a competition which is without limits, a competition which defeats one's rivals at whatever the cost. It does not include such conduct as underselling a rival even at a loss in order to accomplish some ulterior purpose, for example, to punish him for a personal injury or to drive him out of business. The competition of economics is a competition which is directed to the gaining of an economic advantage derivable from the opportunity to make a particular sale or purchase. This means that, on the one hand, the seller will continue to lower his price until he gets for his commodity no more than it costs him (including a profit to himself), but no longer than this; and, on the other hand,

that the buyer will continue to raise his bid until he pays for the commodity as much as it is worth to him, but no longer. It is only on competition when understood in this sense, that the principles of price to be explained in the following chapters are founded. They assume that competition will always cease when the immediate economic gain is completely eliminated. Cut-throat competition, predatory competition, to use a term having much vogue in recent years, is not included in the competition of economic theory.

**Discrepancies between These Assumptions and Reality.**—Now, as everyone knows, the ideal conditions described are never fully realized in any actual exchange situation.

Men are influenced by motives other than the economic, their knowledge and judgment are imperfect and their actions inconsistent. The perfect market, too, is rarely if ever to be found. The great exchanges which provide our nearest approach to it, have ample means of disseminating information; but they often fall short in other respects, because the excitement, the rumors, the tendency to imitation—these and other conditions which flourish among a large number of men gathered in the same room—cause buyers and sellers to act without rationality. Moreover, we know that the pure competition of the economic hypothesis is only partially realized, being at times replaced by monopoly on the one hand or unbridled competition on the other.

**Legitimacy of Our Procedure.**—But, although these ideal conditions are never entirely realized, we are compelled, if we wish to make any progress at all in our science, to accept them as the fundamental basis of our reasoning. The human intellect is of but limited reach and power; and in economics, as in any other science, it is quite incapable of studying simultaneously all the forces at work, or all the varying intensities of even one force. We have to study the different forces separately and under simplified conditions, eliminating many elements and assuming a fictitious purity and uniformity in those retained. It should be added, however, that if this is the only way to make progress, it is in economics, as in other sciences, a perfectly feasible way. It enables us first

to gain a knowledge of fundamental principles, unconfused by exceptions. When we undertake to apply the principles in actual life, it may be necessary again to take into account the various forces from which our attention has been abstracted in the purely economic analysis. But after all, exceptions to the principles are much less important than the principles themselves; and, anyway, we cannot even begin to understand the former until the latter come to hold an assured place in our minds. However abstract, therefore, however dependent upon imperfect or unreal hypotheses, the principles constitute the deepest, most vital facts in actual price-determination, and so must be fully mastered.

# CHAPTER XX

## MARKET DEMAND SCHEDULES

It is a fact with which probably everyone has some acquaintance that the determination of price, in any but its most superficial aspect, is somehow a matter of demand and supply. Accordingly, we must now give some attention to these elements. The present chapter will be devoted to a study of demand.

### I

### The Nature of Demand

By the demand for any commodity, the economist means in general *the quantity of that commodity which buyers stand ready to take at some specific price.* In this definition let us emphasize, first, the point that demand is the amount which buyers stand ready to take,—offer to take. That is, demand must not be confused with (1) the amount men *want* on the one hand, nor (2) the amount men *actually buy* on the other. Demand must not be confused with the amount of a commodity which men *want.* Mere want, mere desire, not backed by buying power and not brought to an issue in a decision to purchase if the price is satisfactory, does not constitute demand. The penniless man looking in at the baker's window, however hungry, adds nothing to the demand for bread. It is plain, of course, that men's needs, wants and plans play a vital role in *determining* demand. Thus, if an electric company is intending to use the water-power of the Huron River on a great scale for supplying current to Detroit and other cities, the company will need a large amount of copper wire, and so will doubtless come on the market to buy such wire. But while needs and plans constitute one condition of demand, they do not constitute demand

itself. Demand exists only when the company stands ready to buy the wire.

But, if we take care not to confuse demand with the amount which people want or need, we must be equally careful to distinguish it from the amount *actually bought*. Demand in the correct sense might be characterized as *potential* demand; the amount bought, as *realized* demand. Of course, the amount of the commodity in question which was actually bought at a certain price must have been the same as the amount which men stood ready to buy at that price, else it would not have been bought. That is, realized demand and potential demand at a given price must be equal. But the meanings of the two expressions are very different; and this difference is of great importance. Potential demand, the amount of any commodity which men stand ready to take at each of many different prices plays, a very great part in determining what price will actually prevail. Realized demand, on the contrary, is determined by actual price rather than helping to determine it.

**A Conditioning Price.**—A second point in our definition which needs emphasis is the phrase "at some specific price." Every proper statement affirming the existence of a demand must explicitly or by implication represent this demand as conditioned on a certain price. Thus, it is proper to say, "The demand for silver at 55 cents per ounce is 120,000." It is not proper to say "The demand for silver is 120,000 ounces," leaving out the phrase "at 55 cents per ounce," except on condition that both the person making the remark and the one to whom it is addressed already have one particular price in mind, as for example, the price at which sales are actually being made at the time the statement appears. The grounds on which this contention rests are perhaps sufficiently evident. The affirmation that "the demand for silver is 120,000 ounces," strictly interpreted, ought to mean that there is a demand for 120,000 ounces of silver *whatever be the price*. But, of course, no such affirmation could reasonably be made. Everyone knows without having studied economics that, if the demand for silver were 120,000 ounces when the price was 55 cents, it would be smaller were price to rise to 60 cents. Accuracy, therefore, requires us to specify a price

whenever we affirm demand to be so and so; though it is doubtless possible that, in any particular case, the conditioning price might be implied with sufficient clearness. Thus if any person familiar with business matters were to make a statement like the above, he would doubtless mean, and other persons would understand him to mean, that the demand for 120,000 ounces existed *at the current market price* or at some price approximately equal to the market price. But such carelessness of statement, trusting to mere implications, often misleads the uninformed and causes confused thinking even with the trained student.

One further point in explanation: Our definition implies that the relation between the volume of demand and the conditioning price is *twofold*. It means, first, that *if* price is the one named, the demand will be of the volume indicated, and secondly, that, *only* if price is as *low* as the one named, will demand be of the volume indicated. Accordingly, if we say that the demand for silver is 120,000 ounces at 55 cents, we should be understood as affirming both the following propositions: (a) If any person wishes to insure that demand shall *not* get as large as 120,000 ounces, he must insure that price does *not* go as low as 55 cents. (b) If any person wishes to insure that demand *shall* be as great as 120,000 ounces, he must insure that price *does* go as low as 55 cents.

**Demand Price.**—The point so strongly emphasized in the preceding paragraphs, that the appearance of a given demand is conditioned on the appearance of a given price, gives rise to a concept of much importance and one constantly in use, namely, that of *"demand price."* In the illustrations just used, 55 cents is assumed to be the demand price of 120,000 ounces of silver. This means that, if, and only if, the actual price were to become 55 cents, would the demand be 120,000 ounces. Further study will show us that at times this statement may seem to need qualification because of the fact that *demand may remain the same at several different prices,* so that any one of these might seem to be the demand price, which would amount to saying that none was. It will become evident as we proceed, however, that, of these several prices, *only one* really *conditions* the appearance of the given de-

mand, and that, therefore, only one price is really the demand price of the given volume of demand.

### Illustrative Problem

"The demand for labor is almost always less than the amount offered." Criticize that method of statement. Remodel the statement in two or three different ways to show what the writer might have meant.

## II

## The Dependence of Demand on Price

In the preceding discussion, it was shown that the quantity of demand is conditioned upon price. We must now explain this

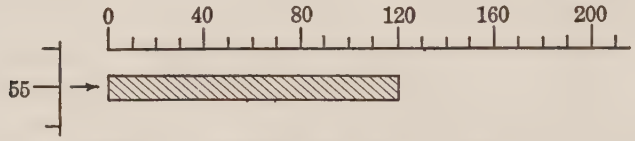


Figure 1. Demand Dependent on Price A

conditioning more fully. Let us suppose that, on a certain day, the demand for silver at a price of 55 cents is just 120,000 ounces as in our last illustration. This quantity is represented in the accompanying diagram by the shaded rectangle,—the vertical scale at the left indicating the price in cents and the horizontal scale at the top indicating the number of ounces in thousands. The arrow at the left pointing from the figure 55 toward the rectangle is intended to bring out the idea that the price of 55 cents is the immediate condition or cause which insures that the demand shall be the amount indicated. Now, starting with this hypothesis that 120,000 ounces are demanded at 55 cents, we may be quite sure that the same persons who stand ready to buy that amount at the price stated, or, anyhow, some other persons, are ready to buy,—have the mental attitude needed to induce them to buy,—say, 10,000 ounces more at a price of 54 cents; 40,000 ounces more at price of 53 cents; 80,000 ounces more at a price of 52 cents; and so on. That is, right alongside of the 120,000 demand which would be

realized if a price of 55 cents were reached, and a part of the same general situation, we have various other potential demands which would just as surely be realized if lower prices were established. In Figure 2, we have these other demands presented along with demand at the 55-cent price.

But, not only is it involved in the demand situation that larger amounts would be taken were the price lower than 55 cents; the complementary statement is also true. Given the present mental attitude of buyers, the amount demanded by them would be smaller if price were higher than 55 cents, instead of lower. Thus, some

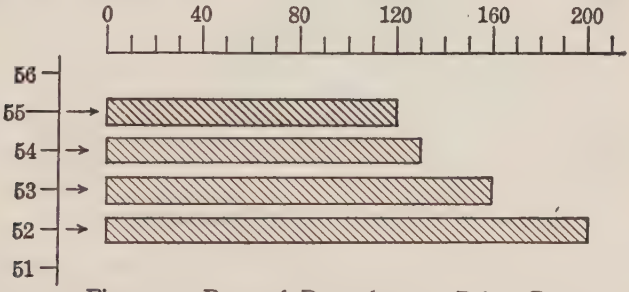


Figure 2. Demand Dependent on Price—B

of the people whose offer to buy at 55 cents aggregated 120,000 ounces, would, if price rose to 56 cents, withdraw a part or all of their former demand; they, or others, would withdraw still more of that demand, if price rose to 57 cents; still more, if it rose to 58 cents; and so on. That is, as a part of the same general situation from which we set out, we have a series of potential demands at prices *above,* as well as at prices below, the assumed one of 55 cents. Supposing these demands to be 110,000 ounces at 56 cents, 80,000 ounces at 57 cents, 40,000 at 58 cents, and so on, and combining them with the demands indicated in our last diagram, we should have the result represented in Figure 3.

**The Demand Schedule.**—We are now prepared to explain the meaning of a phrase which will be frequently used in the following pages,—the phrase "demand schedule." Demand, as we have just seen, is always relative to a particular price stated or implied,

and the amount of demand, generally speaking, varies inversely though not *proportionally* to price: the lower the price, the greater the demand; the higher the price, the smaller the demand. It follows that the facts of demand at any time require for their ade-

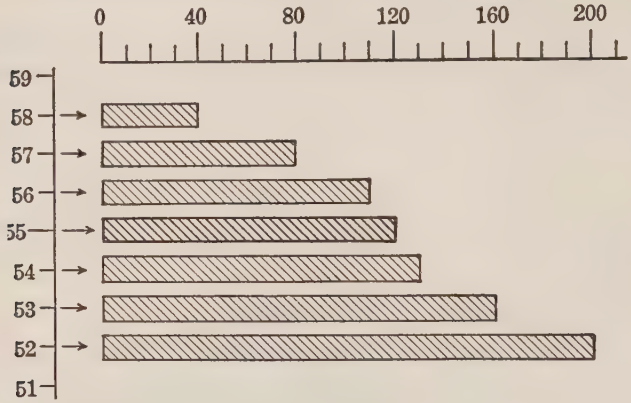


Figure 3. Demand Dependent on Price—C

quate statement a series of conditional propositions. Thus, the supposed case for silver would be most adequately stated as follows:

The demand would be 40,000 oz. if price were as low as 58 cents
The demand would be 80,000 oz. if, and only if, price were as low as 57 cents
The demand would be 110,000 oz. if, and only if, price were as low as 56 cents
The demand would be 120,000 oz. if, and only if, price were as low as 55 cents
The demand would be 130,000 oz. if, and only if, price were as low as 54 cents
The demand would be 160,000 oz. if, and only if, price were as low as 53 cents
The demand would be 200,000 oz. if, and only if, price were as low as 52 cents

Such a series of propositions, we call a *demand schedule.* In order to abridge the statement of it, we will put it in the form of two columns of figures with the proper headings, Price and Demand, as shown in Table 1. The student must always remember, however, that it is, in effect, *a series of conditional statements,* such as those already given.

TABLE I

| PRICE CENTS | DEMAND 000 OZ. |
|---|---|
| 58 | 40 |
| 57 | 80 |
| 56 | 110 |
| 55 | 120 |
| 54 | 130 |
| 53 | 160 |
| 52 | 200 |

A demand schedule of the general type just presented probably comes nearer to representing the facts of experience than would a more symmetrical one. But as our purpose in using

these schedules is primarily pedagogical, we shall change this one to a form which can be used more effectively in clearing up the theory of price. In this new schedule, the variations of demand consequent upon changes in price are represented as *uniform,* 10,000 ounces in each instance. Thus altered, and carried both higher and lower, our schedule will appear as in Table 2. In diagrammatic form it is presented in Figure 4.

TABLE 2

| PRICE CENTS | DEMAND 000 OZ. |
|---|---|
| 60 | 70 |
| 59 | 80 |
| 58 | 90 |
| 57 | 100 |
| 56 | 110 |
| 55 | 120 |
| 54 | 130 |
| 53 | 140 |
| 52 | 150 |
| 51 | 160 |
| 50 | 170 |

**Real Changes in Demand.**—One further point which should be noted before we leave this immediate topic is a possible ambiguity in our use of such expressions as "demand has changed," "demand has increased," "demand has diminished," etc. Usually we mean, perhaps always *ought* to mean, that *the whole demand schedule* has changed,—*at each of the prices of the schedule,* demand is different from what it was. Such a change is a *real* change in the demand situation and is sure to cause a change in price unless some other change in the conditions neutralizes this one. But not seldom people say that demand has changed, when they mean merely that *another part of the existing demand schedule has been realized* because actual price has changed and so fulfilled the condition necessary to make that part effective. Such a change is *not really a change in demand at all. The total demand situation is just what it was before;* since, as we have already indicated, the demand of any one moment is not just the demand at one particular price, but the whole series of demands at a series of prices, which demands and prices together embody or express the total demand situation.

In order to avoid the ambiguity just referred to, it might be well to use the expression "the demand *schedule* has changed," when we mean that demand at the same prices has changed. As we shall see, a *general* change in the demand schedule, not in just one item of demand, is really necessary to bring about a change in price; and so this method of expression would be more adequate than any other. But it would probably be futile to attempt to make such

a change in usage. We must, therefore, be careful not to confuse the two possible meanings of "changes in demand."

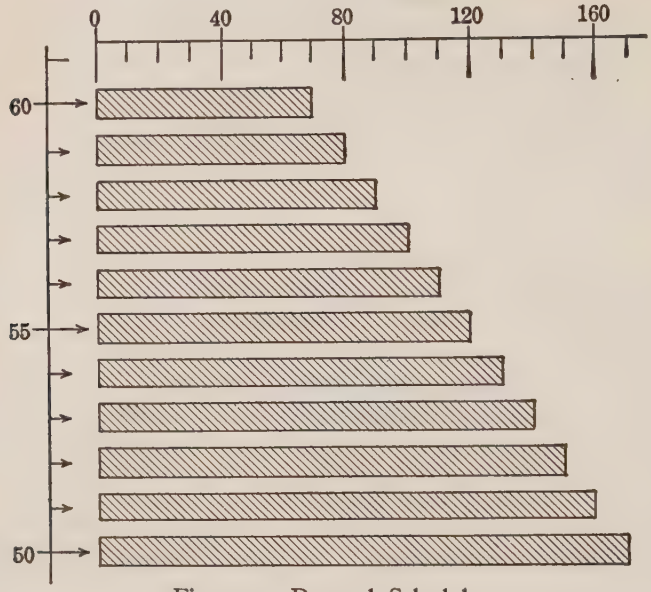


Figure 4. Demand Schedule

**The Inverse Elasticity of Demand.**—Since the points established in the preceding discussion are of much importance in later connections, we will give them the emphasis derived from definite formulation in a principle.

**Principle**—The Law of the Inverse Elasticity of Demand.

*Demand is always relative to a particular price expressed or implied, and, broadly speaking, varies inversely as said price, though not proportionally.*

### Illustrative Problem

"The statement 'price depends on supply and demand' is not the whole truth; it is equally true that 'supply and demand depend on price.'"

Comment: The above statement seems to mean that supply and demand, on the one hand, and price, on the other, are *reciprocally dependent*. So understood, the statement is quite erroneous. The supply and demand on which price depends are not the supply and demand which depend on price. When we say that an increase in the demand for silver would raise its price, we mean, by "an increase in the demand," a condition in which buyers stand ready to take, at a *given* price, more silver than they would before have taken at *that same* price. When, however, we say that a fall in the price of silver would cause "an increase in the demand," we do not mean, by that phrase, at all the same thing as before. On the contrary, the proposition assumes that buyers stand ready to take, at any given price, *just what they stood ready to take before,* no more and no less.

What, then, *do* we mean would happen if the price fell?

## III

### The Interpretation of Demand Schedules

**Demand Schedules Composite.**—As we shall have frequent occasion, during our study of the theory of price, to make a discriminating use of demand schedules, it is very important that, at the outset, we should gain familiarity with the true nature and significance of these schedules and their various parts. First, it is to be noted that demand at any particular price is a *composite* made up of many sections or *increments,* each one of which, except the last, would appear at some higher price. To clear this up, let us start with the lowest line in our demand schedule on page 259 the demand at 50 cents. Manifestly, this 170,000 ounces consists of the 10,000 which came in only when price fell to 50 cents, added to the 160,000 already wanted at 51 cents. But the 160,000 ounces, in turn, consists of the 10,000 which came in at 51 cents, added to the 150,000 already wanted at 52 cents. And the 150,000 ounces, again, is the 10,000 coming in at 52 cents added to the 140,000 wanted at 53 cents—and so we might continue all the way to the top of the schedule. Accordingly, the 170,000 ounces wanted at 50 cents is the sum of all the increments of demand which would successively appear, if price were to pass through all stages from the highest to the lowest. The point just made is graphically pre-

sented in Figure 5, where the small letters represent the successive additions to demand which are supposed to appear at each price. Thus, *q* comes in at 50 cents itself; *p* came down from 51 cents; *o*, from 52 cents; *n*, from 53 cents; *m*, from 54 cents; *l*, from 55 cents; and so on.

**Included and Excluded Increments.**—Another important matter concerns the different *divisions* into which the various sections

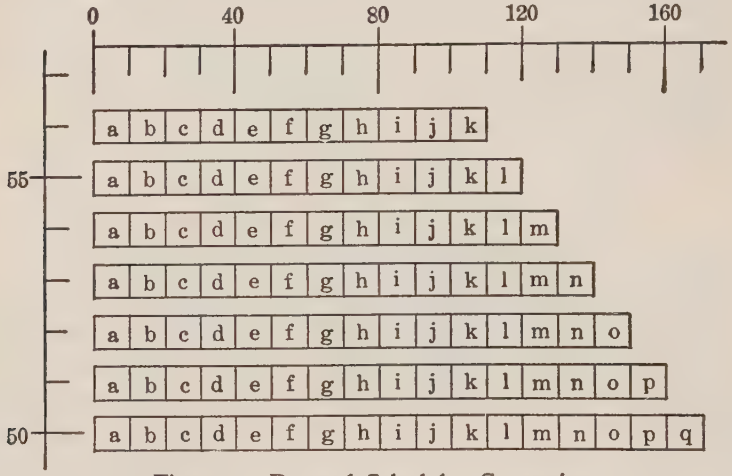
0
40
80
120
160
55
50
a b c d e f g h i j k
a b c d e f g h i j k l
a b c d e f g h i j k l m
a b c d e f g h i j k l m n
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o p q

Figure 5. Demand Schedules Composite

or increments of demand group themselves *when any particular price has been established.* The first break occurs between the *excluded* increments and the *included* ones. Thus, if price proves to be 55 cents, all the increments of demand which depend upon a price lower than this will, of course, be shut out; while all increments which depend upon this or a higher one will be included, for the man who was ready to buy at 56 cents or 57 cents or 58 cents will surely be in the same frame of mind if price falls to 55 cents.

**Marginal, Intra-Marginal, Extra-Marginal.**—A still more useful classification of the different increments of demand takes as its starting point a particular one of the included increments—called *the marginal increment*—and divides all others into two groups, one

inside and one outside this marginal increment. The one chosen for our starting point—the marginal increment—is *the last of the included ones,* the last to appear when an actual price of 55 cents was being established.[1] In conceiving this idea, however, we should not emphasize the *time* aspect of the matter. For it is quite possible that, as a matter of fact, the marginal increment came in *earlier* than some of the other included ones, though it would not have done so had the conditions all been what they are now. That is, the real point involved is that the marginal increment is the increment which, in view of all the conditions present, would be *expected* to come in last,—the one which the conditions at work would naturally *cause* to come in last. At what stage it did actually appear is a matter of no moment. This aspect of the case frequently leads the economist to substitute for this method of characterizing the marginal increment, one which represents it as the increment which would be *the first to drop out if price should rise.*

Since we have chosen to designate the increment of demand which would naturally have come in last or would naturally go out first—that is the increment which lies at the boundary line between included increments and excluded ones—the marginal increment, we naturally designate all other included increments,—all those *inside* the marginal one—intra-marginal increments;[2] while all excluded ones—all outside the marginal—we call *extra-marginal* increments. As will appear in a later chapter, only two among all these various increments of demand play an immediate, direct part in the determination of price, namely: the *marginal* and *first extra-marginal.*

The location of these various increments of demand is brought out in Figure 6. The rectangle opposite each price figure represents the included demand, the demand which would appear if that price were established; the space beyond the rectangle included

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[1] It may help us to realize the true nature of this concept of marginal increment, as also several other very important concepts in which the marginal idea is present, if we think of the marginal increment as that one of the included increments which comes just before we are through them, just before we pass to the excluded ones. It is, so to speak, *at the margin of the lake,* just before we reach the shore.

[2] Sometimes designated *supra*-marginal.

between the dotted lines represents the excluded demand, the demand which at a given price would be shut out. The demand excluded at any price is of course made up of demands which would appear at lower prices. The figure opposite the 55-cent price represents a condition of things brought about by an actual price of 55 cents.

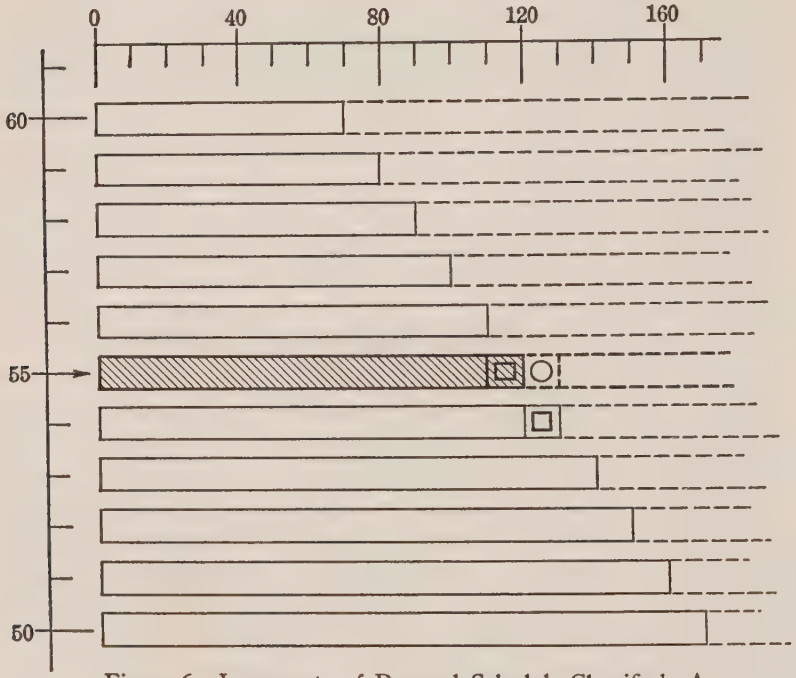


Figure 6. Increments of Demand Schedule Classified—A

The included demand is shaded as well as being bounded by the continuous lines; while the excluded demand is represented by the space between the heavy dotted lines. The square cut off from the right-hand end of the shaded rectangle and further marked by the inclosed *square* stands for the marginal increment of demand, the increment which last comes in when actual price becomes 55 cents. Since all demands outside this one are extra-marginal ones as well as excluded ones, the space between the dotted lines represents such extra-marginal demands. The square cut off from the left-hand end of this space and further distinguished by the inclosed *circle*

represents the *first* extra-marginal increment of demand. This increment of demand is obviously the same as the one which would come in if actual price were to fall to 54 cents, that is, at 54 cents it would be the marginal increment of demand. It may therefore be represented in our diagram by the square cut off from the right-hand end of the 54-cent rectangle and having a small square in-

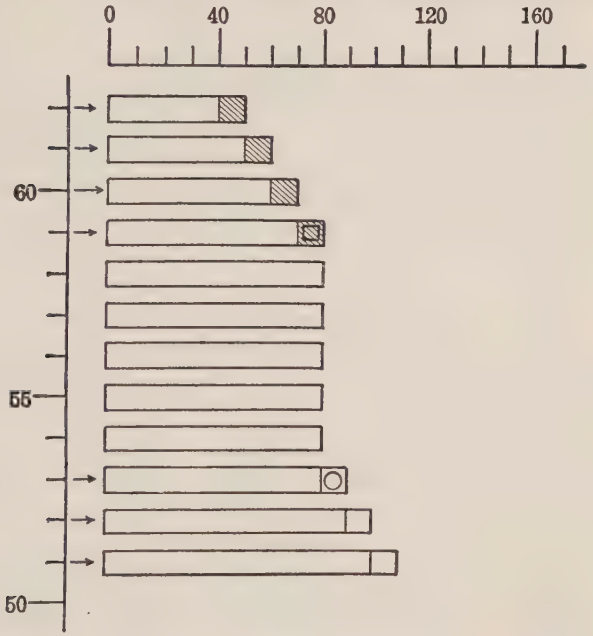


Figure 7. Increments of Demand Schedule Classified—B

scribed. Its representation in the 55-cent figure, however, brings out better its character as *extra-marginal.*

**Different Demand Prices.**—On page 255 it was explained that the particular price which was necessary to bring out any particular amount of demand is known as the *demand price* of that amount of demand. In the case before us, therefore, 55 cents is the demand price for 120,000 ounces of silver. But it is also plain that 55 cents is in a peculiar sense the demand price of the marginal

increment of demand, the 10,000 ounces which would come in only when price fell to that point. Being thus the demand price of the marginal increment of demand, it is very naturally called the *marginal demand price.* In like manner, 54 cents, the price which would be necessary to bring out the first extra-marginal increment, the increment which would come in only if price fell to that point, is naturally called the *first extra-marginal demand price.*

| Demand 000 oz. | Price cents |
|---|---|
| 50 | 62 |
| 60 | 61 |
| 70 | 60 |
| 80 | 59 |
| 80 | 58 |
| 80 | 57 |
| 80 | 56 |
| 80 | 55 |
| 80 | 54 |
| 90 | 53 |
| 100 | 52 |
| 110 | 51 |

To give our ideas with respect to these demand prices *greater definiteness,* it is desirable to deal with demand schedules in which demand is supposed to remain constant through several prices; for such a schedule makes possible a sharp separation of actual price, marginal demand price, and first extra-marginal demand price.[3] A schedule of this sort is represented in the accompanying table and in Figure 7,—demand remaining just 80,000 ounces while actual price ranges from 59 cents down to 54 cents. Under this schedule, if actual price were 56 cents, the marginal demand price would be 59 cents, since this is the price which brought in the last increment of demand; while the first extra-marginal demand price would be 53 cents, since this is the price necessary to bring in an extra-marginal increment of demand. Further, the marginal demand price would continue to be 59 cents, and the first extra-marginal demand price would still be 53 cents, so long as price was not more than 59 cents nor less than 54 cents.

As a matter of course, we often have occasion to apply the terms marginal, extra-marginal, and intra-marginal to *buyers.* Marginal buyers are those who make some or all of their purchases *only when, and because, actual price has fallen to the marginal demand price;* or marginal buyers are those included buyers who would be *the first to drop out of the market if the price should rise.* In other words, the marginal buyers are the ones who are responsible for

[3] As we shall learn in a later chapter, long-time demand schedules,—schedules which sum up the demand facts for a whole period—often show this peculiarity.

the marginal increment of demand. So, the intra-marginal buyers are the ones responsible for the intra-marginal increments of demand. Their purchases would be assured, even if price were higher than it proves to be. The extra-marginal buyers are the ones responsible for the extra-marginal increments of demand. They make no purchases and are frequently called the excluded buyers.

## Illustrative Problems

1. Suppose that on the second Saturday of October a section of the demand schedule for wood in Ann Arbor is as follows: 1 cord wanted at $6; 2 at $5.75; 4 at $5.50; 3 more at $5.25; 3 more at $5; 7 more at $4.75; 8 more at $4.50; and so on. Put this into tabular form.

2. Suppose that the conditions of demand for Milton's autographs are such that 1 would be wanted if the price were $200; 2 if price were $175; 4 if $150; 5 if $140; 8 if $125; 9 if $110; 12 if $100; 13 if $90; 15 if $75; and 20 if $50. Put this demand schedule into tabular form.

(If the problem had said: 1 wanted at $200; 2 at $175; and so on, it would have meant the same thing.)

3. Suppose that the demand schedule for silver at a certain time is represented by the accompanying table, answer the following:

| Demand 000 oz. | Price cents |
|---|---|
| 66 | 68 |
| 70 | 67 |
| 70 | 66 |
| 70 | 65 |
| 84 | 64 |
| 92 | 63 |
| 100 | 62 |
| 100 | 61 |
| 100 | 60 |
| 100 | 59 |
| 107 | 58 |
| 120 | 57 |
| 120 | 56 |
| 120 | 55 |
| 133 | 54 |
| 145 | 53 |
| 145 | 52 |
| 153 | 51 |

(a) Interpret the first three lines; the last five lines.

(b) What would be the marginal increment of demand if actual price were 67 cents? 65 cents? 63 cents? 59 cents? 57 cents? 55 cents?

(c) What would be the first extra-marginal increment of demand if actual price were 66 cents? 65 cents? 61 cents? 59 cents? 54 cents?

(d) What would be the marginal demand price if actual price were 67 cents? 66 cents? 63 cents? 60 cents? 56 cents? 52 cents?

(e) What would be the first extra-marginal demand price if the actual price were 65 cents? 66 cents? 67 cents? 63 cents?

(f) Who would be the marginal buyers if actual price were 66 cents? 53 cents? 55 cents? 60 cents? 54 cents?

(g) Who would be the first extra-marginal buyer if actual price were 66 cents? 65 cents? 61 cents? 58 cents? 56 cents? 52 cents?

# CHAPTER XXI

## MARKET SUPPLY SCHEDULES

### I

### The Nature of Supply

We have considered one of the two most essential elements in price-determination, demand; we must now take up the second, supply. In general, we shall understand the supply of any commodity to mean the *quantity of that commodity which sellers stand ready to dispose of at some specific price.*

**Supply and Stock.**—Here we need to emphasize, first, the statement that supply is the amount which sellers stand ready to dispose of. In particular, the supply of anything should not be confused either (1) with the total amount in the hands of producers or dealers, or (2), on the other hand, with the amount actually sold. Supply should not be confused with the total amount in the hands of producers or dealers. This total we call stock; and only a part of it constitutes supply,—so much of it as people stand ready to sell at some price or other. But, though stock is not the same as supply, it is of course the immediate source of supply, and, therefore, does much in determining supply. On the one hand, it always sets an upward limit to supply. On the other hand, it exists only to become supply, and so must ultimately make supply as large as itself. The supply of wheat in the market today may be only 10,000,000 bushels, though the stock is 1,000,000,000 bushels; but, in the course of the season, most of the 1,000,000,000 bushels is bound to be offered for sale, and, therefore, taking the season as a whole, the supply is certain to become substantially coincident with the stock.[1]

[1] The distinction between stock and supply is more particularly applicable in the discussions of the next chapter. When we come to consider normal

Again, supply must not be confused with the amount actually sold. The reason is analogous to that which was given to show that we should not confuse demand with the amount bought. As a matter of fact, "the amount which people stand ready to dispose of" may be, but need not be, equal to "the amount which is actually sold." But, even if the two were always quantitatively equal, the meaning, the connotation of the two phrases would be different. "The amount which sellers stand ready to dispose of" plays a very great part in determining price; but "the amount actually sold" is itself determined after price is determined.

**A Conditioning Price.**—A second point in our definition which needs emphasis is suggested in the phrase "at some specific price." No statement affirming the existence of a given volume of supply can be recognized as adequate unless it represents supply as *conditional on some particular price.* Thus, it is proper to say, "The supply of silver is 120,000 ounces at 55 cents an ounce"; but unless the current market price is implied and understood, it is not proper to say, "The supply of silver is 120,000 ounces." For the latter statement, literally interpreted, means that sellers stand ready to dispose of 120,000 ounces whether the price be low or high; and such a statement would in most cases be absurd indeed.

In analogy with the case of demand, this conditioning relation between actual price and the volume of supply gives rise to a special concept of great importance, namely: that of *"supply price."* This means, of course, the particular price which is necessary to bring out the marginal increment of a particular volume of supply and, therefore, is necessary to bring out that volume as a whole.

## II

## The Dependence of Supply on Price

**Supply Schedules.**—We have just seen that supply, like demand, is always relative to a specific price. We must now explain this relation more precisely. First, the facts of supply, like

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price, the price which tends to prevail over some considerable period, we usually have to regard supply as conterminous with stock.

those of demand, require for their complete presentation a supply *schedule,* a series of statements giving the amount of supply at each of a series of prices. This follows from the fact already brought out that the volume of supply is always relative to price. In the second place, though supply is like demand in the sense that its volume is relative to price, the supply changes which follow changes in price are exactly opposite to the demand changes. The volume of supply increases as price rises, and diminishes as price falls, whereas the volume of demand, as we have seen, diminishes as price rises and increases as price falls. In short, supply varies directly, though not proportionally, as price. Accordingly, the supply of any commodity should always be conceived as a series of different supplies, each one of which is conditioned on one particular price. A series of this sort we call a *supply schedule.* Such a supply schedule for silver analogous to the demand schedule given on page 258 would read as follows:

The supply would be 200,000 oz. if, and only if, price were as high as 58 cents
The supply would be 160,000 oz. if, and only if, price were as high as 57 cents
The supply would be 130,000 oz. if, and only if, price were as high as 56 cents
The supply would be 120,000 oz. if, and only if, price were as high as 55 cents
The supply would be 110,000 oz. if, and only if, price were as high as 54 cents
The supply would be 80,000 oz. if, and only if, price were as high as 53 cents
The supply would be 40,000 oz. if price were as high as 52 cents

As in the case of demand, we shall substitute for this schedule one better adapted to the work of explanation, that is, one in which the changes in volume consequent on changes in price are *uniform.* Such a supply schedule for silver is represented in Table 1 and in Figure 1.

TABLE 1

| PRICE CENTS | SUPPLY 000 OZ. |
|---|---|
| 60 | 170 |
| 59 | 160 |
| 58 | 150 |
| 57 | 140 |
| 56 | 130 |
| 55 | 120 |
| 54 | 110 |
| 53 | 100 |
| 52 | 90 |
| 51 | 80 |
| 50 | 70 |

**Real Changes in Supply.**—The expression "supply has changed" shows the same fault of ambiguity that we found in "demand has changed." It *ought* to mean that *the whole supply situation, the supply schedule,* has changed. It often does mean *merely that another part of the existing supply schedule has been realized* because of a change in the actual price. A change in supply in the former sense is sure to

*cause* a change in actual price, unless neutralized by some other change in conditions; a change in supply in the latter sense is *caused by* a change in actual price.

**The Direct Elasticity of Supply.**—The points thus far explained concerning the relation of supply to price, may be put into formal shape as follows:

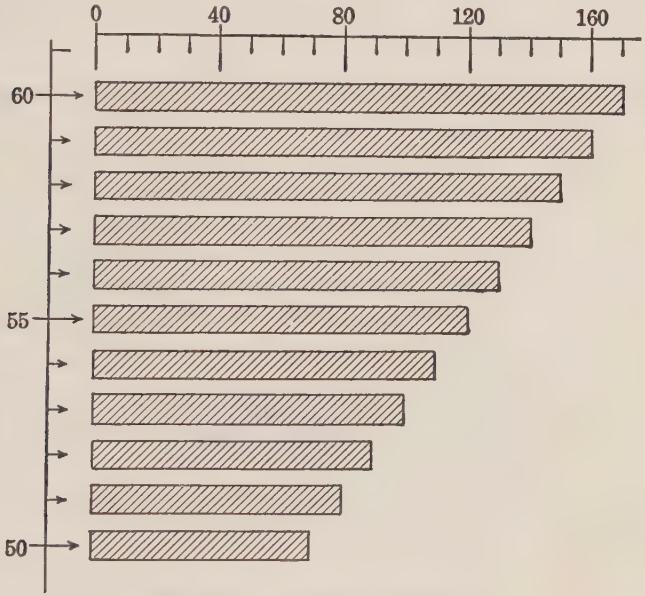


Figure 1. Supply Schedule

**Principle**—The Law of the Direct Elasticity of Supply.

*Supply is always relative to a particular price expressed or implied and, broadly speaking, varies directly, though not proportionally, as price.*[2]

[2] Remember that we are now dealing with the *immediate* supply schedule, the supply schedule which is effective at any one moment. Later we shall have to do with long-time or normal schedules, covering a whole period of some length. To these latter schedules, the principle just laid down is not always applicable. In one set of cases, the supply may be equivalent to the whole stock and, therefore, does not vary at all. In another set, the supply is a *potential* output, which may be *indefinitely large,* provided cost

## III

### The Interpretation of Supply Schedules

**Supply Schedules Composite.**—The first point to be noted in the interpretation of supply schedules exactly corresponds to the first one noted under demand schedules. The supply at any particular price is a *composite,* made up of many different portions, each one of which, save the last, would appear at some other price, in this case, a *lower* one. Thus, the supply at 60 cents, 170,000 ounces, consists of the 10,000 which comes on the market when, and because, price advances from 59 cents to 60 cents, added to the

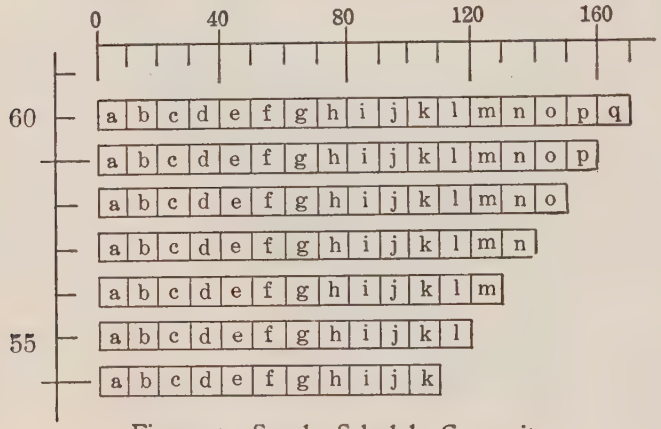
0
40
80
120
160
60
55
a b c d e f g h i j k l m n o p q
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n
a b c d e f g h i j k l m
a b c d e f g h i j k l
a b c d e f g h i j k

Figure 2. Supply Schedule Composite

160,000 already offered when the price was only 59 cents; this 160,000, in turn, consists of the 10,000 which comes in when, and because, price rises from 58 cents to 59 cents added to the 150,000 already offered at 58 cents; this 150,000, again, is the 10,000 coming in at 58 cents added to the 140,000 already offered at 57 cents; and so on. The facts are illustrated in Figure 2, where the little squares marked with small letters show the increment which supply

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of production is covered; and, hence, the schedule shows no supply at prices below the one covering cost and an indefinitely large supply at that cost price and others above it. But these points will be more fully presented later.

receives in each instance as price rises to the level indicated. Thus, in the case of the 60-cent rectangle, the last increment, *q*, appeared first when the 60-cent price itself was reached; *p* came up from 59 cents; *o* from 58 cents; *n* from 57 cents; *m* from 56 cents; and so on.

**Different Increments.**—With supply, as with demand schedules, a second very important task is to distinguish the differ-

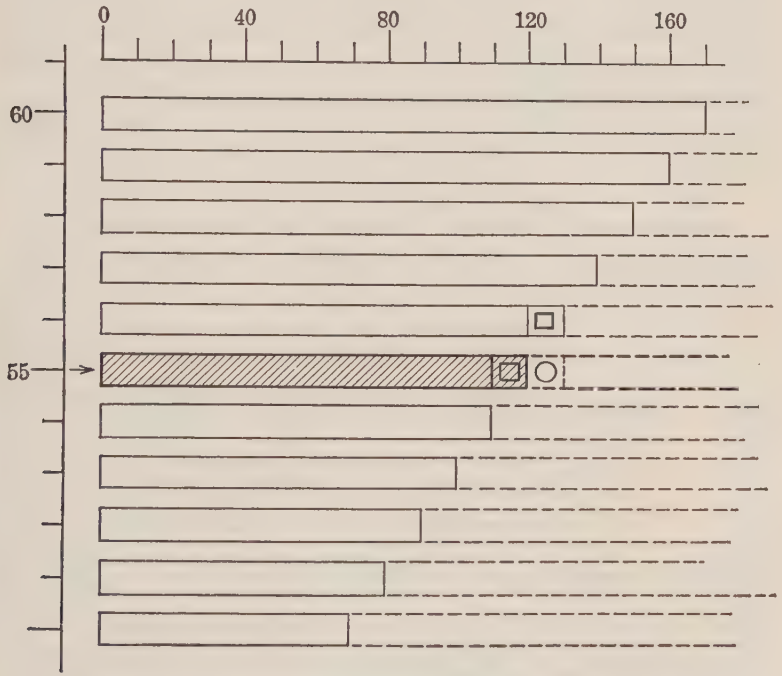


Figure 3. Increments of Supply Schedule Classified—A

ent divisions into which the different sections or increments group themselves just as soon as any particular price is established. The principal grouping, as before, is into *included* and *excluded* portions. Supposing actual price to be 55 cents, all possible increments of supply which are conditioned on a price of 55 cents or anything lower, will be *included* increments; while all possible increments of

supply which are conditioned on a price of 56 cents or anything higher, will be *excluded* increments. Again, among the included increments, the most important is the *marginal* one, the one which is the *last* to come in when a particular price is being established. As in the case of demand, we should note that the marginal increment is the last to come in, *logically* not chronologically. That is, it is the one which the conditions present would be *expected* to bring in last. So, again, another effective way of conceiving this increment is to think of it as the increment of supply which would be *the first to drop out if actual price should fall.* As in the case of demand, the included increments other than the marginal one are designated *intra-marginal* increments; and all the excluded ones, *extra-marginal* increments. The location of these various sections of supply is plainly indicated in Figure 3.

**Different Supply Prices.**—We have seen that, in our example, if actual price was 55 cents, the marginal increment of supply would be the 10,000 ounces coming in at 55 cents. It hardly need be said that this 55 cents would constitute the *marginal supply price,* meaning of course the price which is necessary to bring out, and will bring out, the marginal increment of supply. Similarly, the prices bringing out the intra-marginal increments of supply would be the intra-marginal supply prices, while the prices which would bring out the extra-marginal increments of supply would be the extra-marginal supply prices. Of these last, as in the case of demand prices, only one is of importance, that is the *first extra-marginal supply price.*

TABLE 2

| PRICE CENTS | SUPPLY 000 OZ. |
|---|---|
| 62 | 110 |
| 61 | 100 |
| 60 | 90 |
| 59 | 80 |
| 58 | 80 |
| 57 | 80 |
| 56 | 80 |
| 55 | 80 |
| 54 | 80 |
| 53 | 70 |
| 52 | 60 |
| 51 | 50 |

As in the case of demand, the easiest way to master the distinction between these various supply prices is to study a supply schedule in which supply remains constant for several steps. A schedule of this sort is represented in Table 2, and diagrammatically in Figure 4,—supply remaining at 80,000 ounces while actual price ranges from 54 cents up to 59 cents. Under this schedule there is a sharp separation between the actual price, the marginal supply

price, and the first extra-marginal supply price. If actual price were 56 cents, the marginal supply price would be 54 cents—the price which brought in the last increment of supply—and the first extra-marginal supply price would be 60 cents—the price necessary to bring in any extra-marginal increment of supply. Moreover, the marginal supply price would continue to be 54 cents, and the first extra-marginal supply price would continue to be 60 cents, so long as actual price was not lower than 54 cents nor higher than 59 cents.

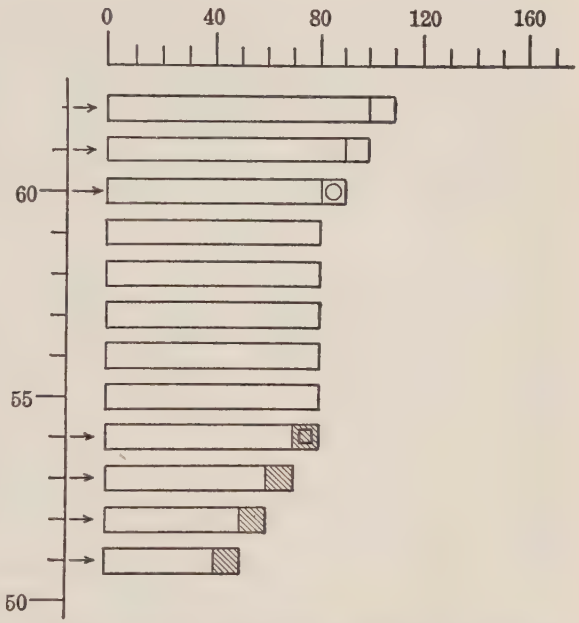

Figure 4. Increments of Supply Schedule Classified—B

**Marginal Supply Price Highest.** — In our analysis of demand schedules, it was brought out that the marginal *increment* of demand is the one coming in at the *lowest* of the prices at which any comes in; and so, of course, the marginal demand *price* is the *lowest of those prices* at which any demand comes in. The case of supply exactly reverses this. The marginal increment of supply is that one among the several increments which comes in at the *highest* of all the prices at which any supply comes in; and, so, the marginal supply price is *the highest of those prices* at which any supply comes in.

Manifestly, similar antitheses appear in connection with the other significant prices. The intra-marginal demand prices are

*higher* than the marginal one; the intra-marginal supply prices are *lower* than the marginal one. On the other hand, the extra-marginal demand prices are *lower* than the marginal one; the extra-marginal supply prices are *higher* than the marginal one.

It is hardly necessary to add that we often have occasion to apply the terms marginal and extra-marginal to *sellers*. Marginal sellers are those who offer to sell some or all of their offerings only when, and because, actual price has risen to the marginal supply price. In other words, marginal sellers are the ones responsible for the marginal increments of supply. Their offerings would not be made, if price were lowered. Extra-marginal sellers are those responsible for the extra-marginal increments of supply. They, of course, make no sales and are commonly referred to as excluded sellers.

## Illustrative Problems

1. Suppose the conditions of supply of Milton's autographs to be such that 15 would be offered if the price were $200; 13, if it were $175; 12, if $150; 9, if $140; 8, if $125; 5, if $110; 4, if $100; 2, if $90; and 1, if $75.

(a) Make out this supply schedule in tabular form.

(b) Make out a combined demand and supply schedule using a demand schedule of your own.

| Price cents | Supply 000 oz. |
|---|---|
| 68 | 163 |
| 67 | 150 |
| 66 | 150 |
| 65 | 142 |
| 64 | 135 |
| 63 | 120 |
| 62 | 120 |
| 61 | 120 |
| 60 | 112 |
| 59 | 100 |
| 58 | 100 |
| 57 | 94 |
| 56 | 85 |
| 55 | 85 |
| 54 | 85 |
| 53 | 72 |
| 52 | 72 |
| 51 | 60 |

2. Suppose the supply schedule for cordwood on a certain Saturday to be as follows: 1 cord offered if price is $4.50; 2, if price is $4.75; two more, if $5; three more, if $5.25; 10 in all, if $5.50; 17, if $5.75; and 8 more, if $6.

Make out a combined demand and supply schedule for this wood using a demand schedule of your own.

3. Suppose that the supply schedule for silver at a certain date is represented by the accompanying table, and answer the questions which follow:

(a) Interpret the last five lines, beginning at the last; also the tenth to the fifth.

(b) What would be the marginal increment of supply if actual price were 55 cents? 60 cents? 63 cents? 58 cents? 52 cents? 65 cents?

(c) What would be the first extra-marginal increment of supply if actual price were 54 cents? 56 cents? 59 cents? 64 cents? 67 cents?

(d) What would be the marginal supply price if actual price were 67 cents? 65 cents? 63 cents? 62 cents? 59 cents? 55 cents?

(e) What would be the first extra-marginal supply price if actual price were 66 cents? 63 cents? 61 cents? 59 cents? 55 cents? 52 cents?

(f) Who would be the marginal sellers if actual price were 67 cents? 64 cents? 63 cents? 59 cents? 56 cents? 54 cents?

(g) Who would be the first extra-marginal sellers if actual price were 66 cents? 61 cents? 59 cents? 58 cents? 55 cents? 52 cents?

4. "In the case of a large majority of commodities, profits do not form a part of the marginal supply price. For, in almost every industry, the marginal producers, the ones whose costs determine the marginal supply price, are getting no profit at all—in many cases are taking losses. I have in mind producers who are way behind the times in the methods they employ and hence are producing at the greatest cost of all producers in their line, but who are bound to stay on producing until they are bankrupt just because they have no other way of making even a semblance of a living."

Answer: "The producers described are intra-marginal, not marginal, producers." Defend the last statement.

5. Mr. A produces a certain commodity at an actual outlay of 12 cents per unit, while the outlay of another producer, Mr. B, is 15 cents; yet Mr. A may be producing the marginal increment of supply. How could that be true?

6. "One of the most exasperating things in the lot of the laboring man is the fact that, however high-minded he may be, however anxious to get wages which insure himself and his family a decent living, his actual wages are bound to be fixed by the rate which the meanest-spirited of his fellow workmen stand ready to take."

Supposing that wages were fixed by the attitude of laborers only, that is, by the amount which they stand ready to take, show that the particular laborer performing this function would not be the meanest-spirited one.

# CHAPTER XXII

## PRINCIPLES GOVERNING THE IMMEDIATE PROCESSES OF PRICE DETERMINATION

In order to make an adequate study of price, it seems almost indispensable to attack that problem at successive levels, in other words, with successive degrees of thoroughness. We shall begin, therefore, by trying to settle the more superficial phases of the problem; follow this with a solution somewhat more thorough; and finish with an attempt to penetrate the whole matter to the bottom. Our study will thus break roughly into three parts: (1) the *immediate* processes of price determination,—*market price,* (2) the *intermediate* processes,—*normal price,* and (3) the *ultimate* processes. All such divisions are of course more or less arbitrary, but the one used will, I believe, justify itself as we proceed. The present chapter, then, is concerned with the immediate processes of price determination.

### I

### The Law of Single Price

From the facts of demand and supply presented in the last chapter, the student might naturally expect to find *the same commodity selling for several different prices.* The appearance of a particular portion of demand, we learned, is conditioned on the establishment of one particular price, the appearance of another portion on the establishment of another price, and so on; and an exactly similar statement is true for supply. At almost any price, then, buyers could find someone ready to sell, and sellers could find someone ready to buy. Even if the forces we are about to study seemed likely to set up a certain price, say 55 cents in our silver problem, why is it not reasonable to expect that sales would after all be made at both higher and lower prices?

Under some circumstances, this would undoubtedly prove to be the case. If several buyers with different notions as to what they wish to pay, go to as many different sellers, and, without inquiring of more than one seller make their purchases, some will certainly pay more and some less for the same commodity. The reason is that each buyer is unaware of the offerings of sellers other than the one he has visited. Similarly, if various sellers are dealing each with an isolated customer, some will get larger prices and some will accept smaller, because each is unaware of what other customers might be willing to pay. Even in the same trading room it sometimes happens that the noise, crowding, and excitement so operate as practically to separate the sellers and buyers into different groups, making sellers in one part of the room unaware of what buyers in another part will pay, and buyers in one part unaware of what sellers in another part will take. Here also, therefore, some buyers will pay more than they would really need to if they looked about them a little, and some sellers will accept less.

But the cause of these variations is plainly something abnormal. The market described is not even approximately the perfect market which our study postulates. Full competition between the different sellers on the one side and the different buyers on the other is not realized. Some of the sellers do not have a chance to provide every buyer with an opportunity to purchase from them. Some of the buyers do not have a chance to provide every seller with an opportunity to make a sale to *them*. If all sellers and all buyers did so provide, the result would be very different. No buyer would pay more than any other, because other sellers, desiring to get his custom, would underbid the seller about to receive the exceptionally high price,—would, so to speak, *force the buyer to take their wares at the lower price*. Neither would any seller accept less than any other, because buyers other than the one about to get the commodity at the lower price would promptly overbid that one,—would, so to speak, *force the seller to take a higher price*. In a market which is truly single and theoretically perfect, therefore, any commodity at any one time must be selling at a single price.

In the real world, of course, there are no theoretically perfect markets. The great exchanges for wheat, cotton, and steel where

many buyers and sellers actually meet in the same room and where almost every conceivable means is available for informing one's self of the facts, doubtless at times approach perfection; but ignorance, folly and the failure of competition always prevent the condition from being reached; and in ordinary markets, naturally, this is much more emphatically true. Nevertheless, the tendency toward a single price set up by the forces mentioned above is always sufficiently strong to be of real and practical significance. Even in the retail trade, differences between the prices of the same commodity in the same market or in connected markets are at once recognized as abnormal. The smallest differences are remarked upon; anything like an indefinite enlargement is quite impossible; and with the spread of greater knowledge, alertness, and skill among buyers and sellers they must tend rapidly to diminish and disappear.

Summarizing the above discussion, we have the following principle:

**Principle**—The Law of Single Price.

*Within the limits of a truly single and theoretically perfect market, no commodity can have more than one price at the same time; and even within the limits of imperfect markets or groups of connecting markets, any commodity must tend to have a single price,—allowance being made in the latter case for the expense of shifting from one to another of the connecting markets.*

**Corollary 1.**—*The law of single price secures to many consumers a differential advantage known as buyer's surplus, i. e., a quantity of other commodities which they can enjoy because of the fact that they can secure the one under consideration at a lower price than the price which they would be willing to give, even for the marginal unit.*

**Corollary 2.**—*The law of single price secures to owners of some scarce and exceptionally efficient factor in production a differential gain. In the case of land, this is called rent; elsewhere, a quasi-rent.*

## II

### The Law of Supply and Demand

We are now prepared to explain the actual processes of price-determination through what is commonly known as *the law of supply and demand.* In doing this, we shall deal with demand and supply schedules of the regular, symmetrical sort which we have called typical, though it will be necessary later to note some variations from these. Let us begin by placing before ourselves, in both tabular and diagrammatic form, our typical demand and supply schedules combined into one. In the table, the common price is placed in the middle column, while the demands corresponding to the several prices appear in the first column, and the supplies in the third. The diagram in the figure on page 284 represents the supply rectangles superposed on those of demand in such a way that the boundaries of the rectangles which express demand and supply, respectively, at any particular price, coincide as far as their length will permit. Since the demand rectangles are shaded from left to right *downward,* while the supply rectangles are shaded from left to right *upward,* the portions which coincide are cross-shaded, while the parts not coincident have only the parallel shading.

| Demand 000 oz. | Price cents | Supply 000 oz. |
|---|---|---|
| 70 | 60 | 170 |
| 80 | 59 | 160 |
| 90 | 58 | 150 |
| 100 | 57 | 140 |
| 110 | 56 | 130 |
| 120 | 55 | 120 |
| 130 | 54 | 110 |
| 140 | 53 | 100 |
| 150 | 52 | 90 |
| 160 | 51 | 80 |
| 170 | 50 | 70 |

**Some Price Equates Supply and Demand.**—From all the data now before us, it is easy to derive a series of propositions embodying the most important facts of immediate price-determination. First, from the very nature of demand and supply schedules, there is *bound to be,* generally speaking, *one price at which demand and supply are equal.* This obviously grows out of the fact that changes in price affect demand and supply in precisely opposite ways: demand varies inversely as price; supply varies directly as price. Two quantities moving in opposite directions under the influence of the same cause are bound to coincide at some point.

This is illustrated in the figure, in which the rectangles representing demand and supply coincide throughout their length at a price of 55 cents.

**Seeming Exception.**—A seeming exception to the above statement might indeed be found. That is, we might have so constructed our schedules that, at a price of 55 cents, supply would have been greater than demand; while, at 54 cents, demand would have been greater than supply.[1] This exception, however, is only a seeming one. Under the conditions supposed, the unit of price variation used is too large for actual market conditions. Making that unit a half cent, instead of a whole one, would probably bring out a coincident price; for a fall in price from 55 to 54½ cents, though increasing demand, would not increase it to the 120,000 which 54 cents would bring out; while that same fall to 54½ cents, though cutting down supply, would not cut it down to 110,000. In fact it is highly probable that, if our schedules had used this smaller money unit, demand and supply at this new price of 54½ cents would each have been just 115,000, and so the equality required would have been reached. If not, still further subdivision of the unit would have been made, until one would appear fulfilling the condition affirmed as necessary, that is, bringing demand and supply to equality.

We have seen that, from the very nature of demand and supply schedules, there is bound to be a price at which demand and supply are equal.

It is equally evident that, in the case of what we have called typical schedules, *any price higher than the equating one is bound to show a supply in excess of demand, while any lower price is bound to show a demand in excess of supply.* This, again, grows out of the very nature of demand and supply schedules. As price rises, demand falls off while supply increases, thus making the latter excessive. As price falls, demand increases while supply falls off, thus making the former excessive.

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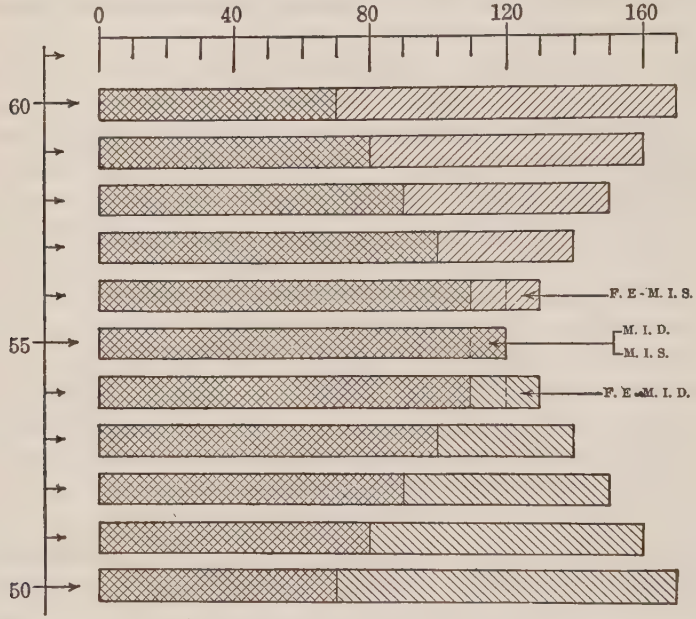
[1] Leave the supply schedule as before, but make the demand schedule read: 60,000 at 60 cents; 70,000 at 59 cents; 80,000 at 58 cents; and so on.

**Sellers and Excess of Supply.**—A third proposition which is easily established affirms that *any price at which supply is in excess of demand is bound to be replaced by a lower price through the competition of sellers:* any price higher than the one which equalizes demand and supply is bound to be eliminated. This grows out of the fact that it is to the interest of all sellers who wish to make sales at or below the price which equalizes demand and supply to use every means in their power to change a condition which shows supply in excess, in other words, to destroy that excess. The reason for this is that, as long as such an excess of supply over demand is present, there is danger that said sellers, though willing to sell at a lower price will not, after all, be able to sell at all;—some seller who would come in only if the higher price was reached, may have the luck to make sales before the more willing sellers do, so that when the latter appear, buyers will already have been satisfied. But not only have the more eager sellers motives for using every means to eliminate the excess of supply, they have the power to do so. First, they are willing and so can afford to offer the goods *at a lower price.* Secondly, this lowering of the price would reduce the excess of supply over demand—reduce the discrepancy between supply and demand,—in two ways: (1) it would increase the demand, (2) it would diminish the supply.

This is plainly seen from the accompanying demand and supply schedule for silver. Sellers ready to dispose of the metal at a price of 55 cents cannot afford to permit a price higher than this, even if only one cent higher, 56 cents. For, since at 56 cents demand is 10,000 ounces smaller and supply 10,000 ounces larger, supply at this figure shows an excess over demand of 20,000 ounces, so that some sellers willing to supply silver at 55 cents or less may fail to sell at all. But, by bidding price down to 55 cents, they insure selling their whole supply; since they increase demand by 10,000 and diminish supply by an equal amount, and so make demand just equal to supply at 120,000 ounces.

This reasoning is diagrammatically illustrated in the accompanying figure. At 55 cents the rectangles of demand and supply precisely coincide at 120,000 ounces. At 56 cents, however, supply shows an excess represented by the portion of this rectangle having only the

parallel shading. Again, this excess rectangle is divided into two equal squares by the dotted vertical. Of these two squares, the left one represents that portion of the discrepancy between demand and supply due to the falling off of demand, while the right square represents the portion of the discrepancy due to the fact that with the rising price supply increases. When sellers bring down the price to




Price Equating Supply and Demand

55 cents, the first portion of the discrepancy is eliminated by the increase of demand as shown in the square at the right end of the 55-cent rectangle cut off by the dotted vertical, and the second portion is eliminated by the decrease in supply shown by the disappearance of the square which appeared at the right end of the 56-cent rectangle.

**Buyers and Excess of Demand.**—We have seen that any price *higher* than the one which equalizes supply and demand is bound to be shut out by the competition of *sellers*. Analogous

reasoning easily shows that *any price lower than the one which equalizes supply and demand is bound to be shut out by the competition of buyers.* All such lower prices must cause demand to be in excess of supply. But buyers willing to pay a price as high as the equalizing one cannot afford to let demand remain in excess, lest the lower-price buyers should take off a part of the supply and leave them in the lurch. They—the higher-priced buyers—will therefore bid *up* the price; and this process will eliminate the excess of demand and that for two reasons as before: (1) the higher price will increase supply and (2) the higher price will diminish demand. In the diagram these two sources of the discrepancy between demand and supply are represented in the 54-cent rectangle by the two divisions of the single-shaded portion divided by the dotted line. The left represents the falling-off in supply; the right represents the increase in demand. When the actual price is bid up to 55 cents, the increase in supply at once takes place, as indicated by the cross shading of the square at the right end of the rectangle; on the other hand, a decrease of demand takes place, as represented by the blank at the end of the 55-cent rectangle which takes the place of the last shaded square in the 54-cent rectangle.

It is obviously implicit in the points made in the last few paragraphs, the points namely: that actual price cannot be either higher or lower than that price which equalizes demand and supply, that actual price cannot be different from said equalizing price. Equilibrium among the price-making forces could not be established as long as a price other than the equalizing one prevailed.

There still remains the question whether even that equalizing price could prevail. Would *it* secure equilibrium among the price-making forces and therefore stand? Our answer must be in the affirmative. The price-making forces which are supposed to be operative in our problem are those which grow out of the competition of sellers on the one hand and that of buyers on the other. These forces consist of that fact about the self-interest of sellers which leads them to *underbid* other sellers in order to insure getting a market, and that fact about the self-interest of buyers which leads them to *overbid* other buyers in order to insure getting the supply they desire. But just as soon as a price has been reached which

equalizes demand and supply, these forces become quiescent; neither sellers nor buyers need to do anything in order to accomplish their ends. At a price of 55 cents, included sellers will market all their wares, included buyers will make all the purchases they desire to. At this point, therefore, there is no disturbing condition left, there is no force derived from competition which tends either to lower price or to raise it. This price, therefore, tends to secure equilibrium among the price-making forces. No other can prevail; this one can. Accordingly, it is the price which tends to be established.

**Law of Supply and Demand.**—We will now summarize the preceding discussion in a formula which contains the most essential elements of what is commonly called the Law of Supply and Demand.

**Principle**—The Law of Supply and Demand.

*Given a typical demand and supply schedule, price must tend to rise so long as demand is in excess of supply and to fall so long as supply is in excess of demand; it must therefore move up or down till it reaches a figure which equates supply and demand; and at this point it can rest, since here the price-moving forces become quiescent.*

The principle just set forth covers the main part of what is really essential in the law of supply and demand. Other significant points are little more than corollaries of this. One of the first of these concerns the effect on price of changes in either supply or demand,—meaning, remember, changes in the schedules, the different supplies or demands at a series of prices. As respects supply, the answer is contained in the following corollary:

**Corollary 1.** *A rise or fall in the supply schedule tends to bring about an opposite (not proportional) change in price.*

A glance at the facts will show this conclusion to be inevitable. A rise in the supply schedule means that supply is now in excess

at the going price. But the principle tells us that price must tend to fall so long as supply is in excess of demand. The *rise* in supply must therefore tend to bring about a *fall* in price, that is, an *opposite* change. On the other hand, if the supply schedule declines in volume, demand at the going price, the price which made supply and demand equal, will be in excess of supply. But the principle tells us that price must tend to rise so long as demand is in excess of supply. A decline in the supply schedule must, therefore, tend to bring about a *rise* in price, an *opposite* change.

**Corollary 2.** *A rise or fall in the demand schedule tends to bring about a like (not proportional) change in price.*

The argument is similar to that employed for the corollary above. A rise in the demand schedule makes demand at the going price in excess of supply; under the principle, therefore, it tends to cause a rise in price, which constitutes a *like change.* A *fall* in the demand schedule makes supply at the going price in excess of demand; and this, under the principle, tends to bring about a lower price, which is also a *like change.*

**Corollary 3.** *A commodity, the schedule of which shows a higher ratio of demand over supply at a given price than the schedule of another commodity shows at the same price, will usually show a higher actual price also.*

Thus, if at a price of 51 cents, the ratio of the demand for silver over the supply is 2 to 1, while that of copper is 2 to 3, the price of silver will naturally be higher than that of copper. The price of silver would have to move up to equate supply and demand; while that of copper would have to move down. This corollary emphasizes the point which the business world somewhat inexactly expresses in saying that "price is all a matter of the ratio between supply and demand." Its importance lies in the explanation it provides of the great, and often very trying, differences in the prices of things, and especially in the remuneration obtainable for supplying different types of services.

## Illustrative Problems

1. "On the Black Friday of 1869, gold was sold on one side of the room for $1.60 when it was being sold on the other for $1.35, etc."—Sumner.

(a) Why is such a fact noteworthy from the economic point of view?

(b) How was it to be explained, do you suppose?

2. Professional men, especially those of the medical profession, frequently try to eliminate the law of single price in respect to their services.

(a) Why is it for the interest of physicians to get rid of this law?

(b) Give some reason why they are quite likely to have more or less success in carrying out this policy.

3. "The price cannot long remain above cost of production. For, so long as it is above, profits will be exceptionally high; this fact will cause production to increase; as a result supply will become . . . , and price will . . . "

Fill in the blanks, using the Law of Supply and Demand.

4. "The demand for wheat was increased beyond the capacity of the best lands to furnish it, and so a new supply was brought out by putting inferior lands under cultivation."

To make that reasoning quite complete, one or two other links should have been put in between the premise and the conclusion. Supply those links.

5. "Demand having increased, price rises. But this higher price cuts down demand; and so price comes right back to where it was in the first place."

Show that this result could not be reached in a normal case.

6. The high rate of exchange made exporting more than usually profitable. As a result, the supply of cotton for the foreign market . . ., the price . . ., this caused the foreign demand to . . ., and so exports . . .

Fill out the blanks, applying the Law of Supply and Demand.

# CHAPTER XXIII

## LIMITING PRICES

In the reasoning employed in the last chapter to establish the principle of supply and demand, we necessarily touched upon some of the deeper forces and processes which are determining prices and bringing them under the rule of supply and demand. We will now inspect these forces a little more closely. In particular, we will show the dependence of the prices actually established on *certain special prices* among the different demand and supply prices.[1]

The method which we employed to prove that the one price at which demand and supply are equal must prevail was to show that *all other prices are certain to be shut out by the competition of either buyers or sellers.* Actual price, we saw, must not go above 55 cents lest it should shut out the marginal buyers, nor up to 56 cents lest it should let in new sellers; and, on the other hand, it must not go below 55 cents lest it shut out the marginal sellers, nor down to 54 cents lest it let in new buyers. Now, if these same facts be interpreted from our present standpoint, they tell us that the upper limits of price are fixed, or may be fixed, by either of two prices of the schedule, and that the lower limits are, or may be, fixed by either one of another two prices of the schedule. Let us now *define more precisely these limiting prices.*

**Upper Limits.**—Price could not go above 55 cents lest it should shut out the marginal buyers. But 55 cents, as the price which brought in the marginal buyers, is *the marginal demand price.* It follows that actual price *cannot go above the marginal demand price,* that is, cannot go to the price next above the marginal demand price. Thus, one of the upper limits of price is *the price next above*

[1] In later connections, we shall comment on various facts and forces lying behind these special demand and supply prices.

*the marginal demand price.* Again, price could not go *up* to 56 cents because this would let in new sellers. But the price which will let in new sellers we have already defined as *the first extra-marginal supply price.* Consequently, actual price *cannot go up to the first extra-marginal supply price.*[2] Accordingly, the second possible upper limit of price is the *first extra-marginal supply price.*

**Lower Limits.**—Turning now to the lower limit, price could not go *below* 55 cents lest it shut out the marginal sellers. But 55 cents, as the price which brought in the marginal sellers, is *the marginal supply price.* Actual price, therefore, *must not go below the marginal supply price,* that is, as low as the price next below the marginal supply price. Accordingly, one of the possible lower limits of price is *the price next below the marginal supply price.* Finally, price must not go *down to* 54 cents because that figure would let in new buyers. But the price which would let in new buyers we have already designated *the first extra-marginal demand price.* Hence, actual price *must not go down to the first extra-marginal demand price.* Thus, a second possible lower limit of actual price is the *first extra-marginal demand price.* We thus have four prices which act, or may act, to fix the limits within which actual price must be established, namely: the marginal demand price, the first extra-marginal supply price, the marginal supply price, and the first extra-marginal demand price.[3]

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[2] In one important case, the first extra-marginal supply price and the marginal supply price coincide. This happens when possible output at a certain cost is indefinitely large: producers can supply much more than is demanded without incurring increased costs. In that case we cannot say that actual price must not go *up to* the first extra-marginal supply price. It *must* do so, else supply will not be adequate, since this is the *marginal,* as well as the first extra-marginal, supply price. For this case, we have to say that actual price cannot go *beyond* the first extra-marginal supply price. The competition of producers who stand ready to supply an indefinite amount at this figure will shut out any higher one. Note, however, that actual price cannot go above this price, not because it is the marginal supply price, but because it is the first extra-marginal supply price, because it is the price which conditions the forthcoming of *more* supply.

[3] Remember that the marginal demand price and the marginal supply price are limits *beyond* which actual price cannot go, while the first extra-marginal supply price and the first extra-marginal demand price are limits *to* which actual price cannot go.

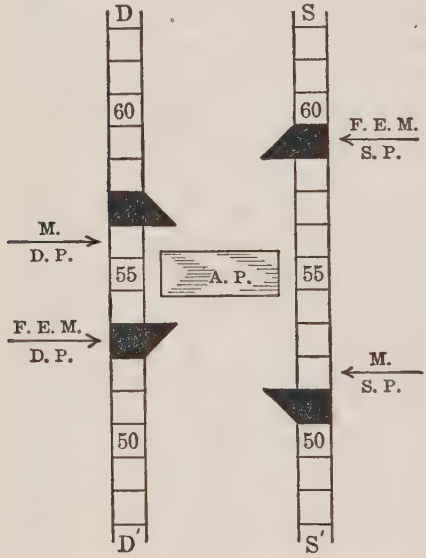
In reading the above account of this matter, the student may object that, since both the limiting prices, above or below, fix the same price, it is hardly worth while distinguishing more than one of them. If actual price cannot go below 55 cents, it certainly cannot go down to 54 cents; if actual price cannot go above 55 cents, it of course cannot go up to 56 cents. This is no doubt quite true as applied to these perfectly symmetrical schedules which were used to explain the working of the law of supply and demand. We shall find, however, that many schedules, anyhow many supply schedules, are much less regular than those used. *In such cases only two or, sometimes, only one, of the four limiting prices may be actually operative.* Our analysis, therefore, could be adequate only if it brought out *all* the limiting moments, as was done above.

**Applied to Irregular Schedules.**—To clear up more completely the matter just commented upon, let us imagine a schedule in which the limits set by the different moments *would not coincide.* Thus, in the accompanying table, demand remains constant at 120,000 ounces, from 56 cents to 54 inclusive, while supply remains constant at 120,000 ounces from 58 cents to 52 inclusive. Since supply and demand are equal only at three prices, 56, 55, and 54 cents, the actual price must be one of these. But with actual price one of these, the marginal demand price must be 56 cents, since this is the one which brought in the last increment of demand; the first extra-marginal supply price must be 59 cents, since this would bring in the next increment of supply; the marginal supply price must be 52 cents, since this brought in the last increment of supply; and the first extra-marginal demand price must be 53 cents, since this would bring in the next increment of demand.

| Demand 000 oz. | Price cents | Supply 000 oz. |
|---|---|---|
| 80 | 61 | 150 |
| 90 | 60 | 140 |
| 100 | 59 | 130 |
| 110 | 58 | 120 |
| 110 | 57 | 120 |
| 120 | 56 | 120 |
| 120 | 55 | 120 |
| 120 | 54 | 120 |
| 130 | 53 | 120 |
| 140 | 52 | 120 |
| 150 | 51 | 110 |
| 160 | 50 | 100 |

But actual price, as already noted, cannot go above 56 cents, the marginal demand price, though as far as the first extra-marginal supply price is concerned, it could go to 58 cents. The latter price, therefore, plays no part in the final fixing of the actual price. Again,

actual price cannot go down to 53 cents, the first extra-marginal demand price, though, as far as the marginal supply price affects the matter, it could go down to 52 cents,—supply does not begin to fall off till 51 cents has been reached. Plainly, then, in a case of this sort, two of the limiting moments of price, those which come from supply, are inoperative,—*both the upper and lower limits of price being fixed by demand prices.* Further, it is plain that *both* of the moments coming from the demand side have to be taken into account; for neither actually fixes price, each of them only *fixes one of the limits within which price may range.*



The Four Limiting Prices

These points just brought out are presented in the accompanying figure. The rectangles DD′ and SS′ represent two guide posts between which moves a counterweight represented by the rectangle AP. The guide post DD′ stands for a series of demand prices from 48 cents to 62 cents; SS′ stands for a series of supply prices covering the same range; the counterweight AP stands for actual price; and the triangles projecting inward from the left-hand post represent the limits of price movement set by demand prices, while those from the right-hand post represent the limits set by *supply* prices. Since actual price must not go above the marginal demand price, 56 cents, it cannot go as high as the first price above this, 57 cents; hence the stop block representing the limit fixed by the marginal demand price is set at a price of 57 cents. On the other hand, since actual price cannot go down to the first extra-marginal demand price, 53 cents, the stop block which represents the limit set by the first extra-marginal demand price is set at 53 cents. Turn-

ing now to the side of supply, since actual price must not go below the marginal supply price, 52 cents, it must not go as low as the next price, 51 cents; hence the lower stop block on the supply side is set at 51 cents. On the other hand, since actual price must not go as high as the first extra-marginal supply price, 59 cents, the upper stop block on the supply side is set at 59 cents. Manifestly, the two limits set by demand prices are inside those set by supply prices; hence they only would be operative under this hypothesis.

**Reverse of Last.**—In the schedule just used to show that only a part of the four limiting prices may be operative in any particular case, supply remained constant for a longer series of prices than demand, and so was prevented from taking part in actual price determination. It is manifest that, if the hypothesis had been reversed, the results also would have been reversed: the limits of price variation would then have been fixed by the marginal supply price and the first extra-marginal supply price. While buyers would not have permitted actual price to go below the former point lest this should have shut out a portion of supply, sellers would not have permitted actual price to go up to the latter point, lest this should have let in a new supply. A special variation of this second case is of much practical importance, namely, one in which the two limiting supply prices, the marginal and the first extra-marginal ones, coincide—*the price necessary to bring out a given supply and the one necessary to bring out the next increment of supply are the same.* This is the case of constant-cost goods to be commented on later.

**Other Cases.**—It is hardly necessary to add that the two types of schedules just used do not exhaust the possible variations from our original situation. Another could be imagined under the working of which the upper limit of price would be set by the marginal demand price, while the lower would be set by the marginal supply price. Under still another type, the upper limit would be set by the first extra-marginal supply price, and the lower by the first extra-marginal demand price. Many others beside these could be imagined.

**Summary.**—In general, there are two determinants of both the upper and lower limits of price variation. The determinants of the upper limit are the marginal demand price and the first extra-marginal supply price: the former fixes the point above which actual price must not go; the latter fixes the point to which actual price must not go. The determinants of the lower limit are the marginal supply price and the first extra-marginal demand price: below the former actual price must not go and to the latter actual price must not go.

In all cases in which the variations in the prices necessary to effect changes in the volume of demand or supply are considerable, only one of the two upper or lower determinants is likely to be effective.

**Other Demand and Supply Prices Assist.**—The purpose of the preceding discussion was to emphasize the immediate dependence of actual price on one or more of just four demand and supply prices. To avoid possible misunderstanding, it is perhaps best to insert a caution at this point. In giving so decisive a place to certain special demand and supply prices, we do not mean that other demand and supply prices have no part in the matter. To establish any price whatever, demand and supply must come to an equality. With the schedule which appears on page 291, this equality of demand and supply was reached with each at 120,000 ounces, and at an actual price of 56, 55, or 54 cents. But with neither demand nor supply was this total brought out by the last or marginal price acting alone. Thus, the marginal demand price, 56 cents, contributed to this total only 10,000 ounces, 110,000 ounces coming down from previous, higher prices. If these earlier increments of demand had not come in,—if the total demand had been limited to the 10,000 ounces which appear at 56 cents,—equality of demand and supply could have been reached only at a much lower point, and, so, actual price would have been much lower. The whole demand of 120,000 ounces was necessary to make possible an actual price as high as 56 cents. It follows that the intra-marginal demand prices, the prices which were able to bring out the earlier increments of demand, have a part in the fixing of the actual price as truly as do the marginal and the first extra-marginal demand prices.

**The Four Occupy Key Positions.**—But now we must be careful lest, in trying to avoid one misunderstanding, we fall into another equally objectionable. Although we admit that demand and supply prices other than the marginal and first extra-marginal ones share in the fixing of actual price, we by no means relinquish the contention that the limits of actual price are *immediately* determined by one or more of the four prices named. While total demand is obviously made up of the sum of *all* the increments of demand, *these different increments must not be thought of as perfectly homogeneous units entering into the total in just the same way.* The case is *not* analogous to that of a pair of scales, the measuring pan of which is loaded with several different weights to balance the object being weighed. In bringing down the pan, each of those weights acts in just the same way as every other. The case is quite otherwise with the different increments of demand or supply. While all influence the result, *they function quite differently* in doing this. The explanation is that each increment is in a very important sense different from every other. This difference consists in the fact that *the emergence of any one depends on the appearance of its own special price, or one lower, in the case of demand, or one higher, in the case of supply.* This being true, the different increments cannot be treated as interconvertible, as if each played a like role with every other. *The lowest-priced of all the demand increments and the highest-priced of all the supply increments hold key positions.* Any price which will bring them out can prevail, even though it differs ever so much in one direction from the special price necessary to bring out any other increment of the total. On the other hand, no price which does not bring them out can prevail, though it brings out every other increment of either demand or supply. In short, the immediate determination of price limits is with the four demand and supply prices which have been so often named; *the part of other demand and supply prices is to assist in determining what prices shall occupy these key positions.*

**Illustration from Analogy.**—In closing this rather long discussion, I am going to add one more illustration from analogy to the very considerable number which have been used by different writers

in this connection. Suppose that the owner of a meat market located in a small town starts out to buy a dozen cattle among the neighboring farmers, and that he can get two from the first farm on his route, one from the second, three from the third, one from the fourth, and so on. How far will he have to go to get the whole twelve? Manifestly, the answer is: *As far as the distance to the farm at which he buys the last one or more necessary to make up the full number.* In other words, the total distance to be traversed will depend immediately on *the distance to the marginal increment, and, immediately, on that only.* But this distance, in turn, will manifestly depend in part on the increments obtainable at farms nearer by. In consequence, these earlier increments share in determining the total distance. Their influence, however, is *only indirect.* They help to make the total distance short or long *because, and in so far as, they make the distance to the marginal increment short or long.*

## Illustrative Problems

1. The holding up of prices always depends on the bidding of included buyers; the holding down of prices depends on the bidding of included sellers. Explain the meaning of that statement and maintain its correctness.

2. While the proposition laid down in the preceding problem is entirely sound, it is still true that the attitude of sellers has a part in holding up price; while that of buyers has a part in holding down price. Defend that statement.

3. Change the demand and supply schedule on page 291 so that the limits of price-variation would be fixed by the marginal supply price and the first extra-marginal supply price.

4. Two conditions are really necessary to the existence of a price for any commodity or service: (1) the demand at some price above zero must be *as great as* any supply which will be forthcoming at that price, and (2) the demand at zero price must be *greater than* any supply which will be forthcoming at that price. Defend that statement with respect to both conditions.

5. "On the other hand, if the price fell to 4 cents, the demand would exceed the supply by 500 pounds, and *those demanding this extra amount*

*would be unable to get it except by bidding a higher price,* and so their competition would drive price up." Criticize.

6. "On account of the very weak bargaining power of the laborer, there is nothing to hinder the rate of wages from going down to the lowest amount laborers can be induced to take." Criticize.

7. "Five persons from a shipwrecked steamer are temporarily saved by getting on a raft; a sixth climbs on, and the raft sinks. Obviously it was not just the sixth person who sank the raft, but *all* the six persons. No more do the marginal and first extra-marginal demand and supply prices by themselves fix actual price. *All* the demand and supply prices equally share in the process."

Show that the analogy is false.

# CHAPTER XXIV

## NORMAL DEMAND SCHEDULES

At the beginning of the last chapter, it was explained that our study of price-determination was to be divided into three parts according as it was concerned with the immediate, the intermediate, or the ultimate stages of price-determination. The first of these stages has already been covered. In the present chapter, we begin our study of the second.

**Need for Normal Price Theory.**—The necessity for a separate treatment of these two stages can be made clear by means of an illustration. In the early nineties of the last century the bicycle, which had just recently been invented, was in process of evolution. At that time, the price of any machine likely to prove serviceable to the buyer was in the neighborhood of $100 to $125. That this price was more or less fully the result of the natural working of the laws of price which were considered in our last chapter, there can be no question; at any rate it was doubtless one which brought demand and supply into approximate equality. However, the price was believed by all well-informed persons to be something quite *temporary* in character. Prospective buyers with lean pocket-books or with more than the usual amount of prudence and patience confidently expected and waited for a decided fall. "The present price," said they, "is plainly abnormal. Doubtless for the time being various causes may enable producers to hold the price up to $100; but this cannot last many years."

Here we find implied the chief reason for distinguishing between the study of the immediate processes of price-determination which occupied the last two chapters and the study of deeper processes which begins in this. Behind the price temporarily prevailing under the influence of immediate forces, there is *a price which tends to be*

*established by the more permanent forces* and toward which the actual price is constantly being driven. And this other price, which we call the "normal," *is in the long run of far greater significance* than the one established by immediate forces. Three chapters will therefore be given to the study of normal price; this chapter and the next to preliminary matters, and the last to the actual processes of normal price-determination.

**Meaning of Normal Price.**—While the meaning of the phrase "normal price" is indicated in the last paragraph, an additional comment or two may serve to make it clearer. It means a *price which is always tending to prevail during a given period as a result of the action of those forces which operate throughout the period,* especially the larger of those forces. But, though always tending to prevail, we should note that, because of the interference of temporary forces, normal price seldom if ever does prevail; and for this reason it is often defined as *the price toward which actual price constantly gravitates, or about which actual price constantly oscillates.* Again, normal price should not be confused with average price, which is a mere arithmetic concept. The two might coincide quantitatively, though it is probable that they seldom do. In any case, they differ radically in meaning or connotation; and, if a certain price were at once the average of all actual prices for a given period and the price tending to be established by the permanent forces of that period, we should call it a normal price solely because it fulfilled the second condition.

**Supply and Demand Not Superseded.**—One of the first matters to be emphasized in connection with normal price is that the law of supply and demand already presented still governs the *immediate* processes of price determination. In creating a tendency for some particular price to prevail, the permanent forces necessarily operate *through,* and only through, *their power to influence the immediate demand or supply schedule.* Thus, if certain forces tend to establish a normal price of 30 cents for wooden chairs, they do this simply because they have the power so to influence the supply schedule that every time the price goes above or below 30 cents, a

tendency is established to pull it back to that point *under the natural working of the Law of Supply and Demand.*

But the law of supply and demand dominates normal price in *a deeper sense.* Besides the immediate demand and supply schedules which at any moment prevail there are long-time or *normal demand schedules* and long-time or *normal supply schedules* covering the whole period under consideration. Thus, when the immediate demand schedule for silver on a particular day in 1918 was 20,000 ounces, if price were 60 cents; 22,000, if 59; 25,000, if 58;—there must also have been a schedule for the *whole year* 1918, a schedule which might have read something like this: 260,000,000 ounces wanted if price were 60 cents; 275,000,000, if it were 59; 290,000,000, if 58. Similarly, alongside the immediate supply schedule there must also have been a long-time supply schedule on a much larger scale.

Now the price which is tending to be established all through this period—the normal price,—is determined by the relation between these long-time or normal demand and supply schedules. Thus, suppose that the schedules for silver given on page 281 represent the long-time supply and demand conditions for that metal, rather than the immediate ones. Then the price which these schedules would naturally establish, 55 cents, would tend to be *the normal price* for the whole period, one year; just as, in the example given, it tended to be the *market price* for the single day when those schedules were effective. With these long-time schedules, as with the market schedules, there would be one and only one price at which demand and supply were equal; and, under the normal working of economic forces, this one price would tend to be established. In undertaking our deeper study of price, therefore, we are not leaving *behind* the law of supply and demand, but merely bringing out forces and processes which lie a little deeper. In fact, all our later exposition of the theory of price will, in a sense, do little more than elaborate and complete our account of the principles of supply and demand.

**Normal Demand Schedules.**—We have seen that the deeper forces determining normal price necessarily act through supply and

demand,—long-time supply and long-time demand; so that behind normal price we find *normal* supply and demand schedules, just as behind market price we find market supply and demand schedules. The remainder of this chapter will be devoted to *normal demand schedules.*

**Begin with Individual Schedules.**—In analyzing normal demand schedules, our first need is to consider the deeper factor or element which lies behind demand *prices.* What determines the prices which in the long run buyers stand ready to pay for a given quantity of goods? In answering this question, it is necessary that we should go to the schedule of the individual buyer and ask ourselves what motive or motives finally determine his conduct. For, obviously, the general or social schedules with which we have to deal are composites or aggregates of numerous individual schedules. Thus, when we say that, according to the general demand schedule for silver, 180,000,000 ounces are wanted if price is 55 cents, we mean that the different amounts of demand at 55 cents from the schedules of all the different buyers of silver will, when added together, give a sum of 180,000,000 ounces.

The student should not, of course, be misled by this emphasis upon the priority of individual schedules over the general market schedule, into thinking those individual demand schedules are *made up independently of social forces.* The wants of any individual, and, therefore, the valuations which he puts upon goods, are necessarily in a very great measure the creation of the community in which he lives, *just because his standards, ideals, and tastes are* in great measure the creation of that community. We are born into the family, into society, into the state; and our ideals are never formed independently of these groups. But this admission does not at all conflict with our doctrine that the demand schedules of the market are composites, made up by adding together the demand schedules of individuals. For, however large may be the share of social forces in the determination of our wants, *those forces finally express themselves through the demand of individual men.* Goods are purchased not by the group will, nor by the group ideal, but by concrete and separate persons. We proceed, therefore, to consider the normal

demand schedules of the individual. Here our chief task is to study the principles which regulate individual demand prices and the forces lying behind them.

**Demand Price and Marginal Valuation.**—First, let us remind ourselves that each demand price appearing in the schedule of the individual is the price which is necessary to induce him to purchase the corresponding quantity of the goods in question. But, secondly, we must remember that the price in question was necessary only in the case of *the last increment* of the total amount involved. For earlier increments of that total the prospective buyer would have been willing to pay higher prices. Immediately, then, his demand price for a given total is really his demand price for the last increment of that total.

It follows, therefore, that, in tracing causation in the case of demand prices, we have to follow the history of *the marginal demand price.* Accordingly, what is the immediate cause which makes the prospective buyer's marginal demand price what it is?

Surely the answer is that such cause is the *valuation* which the buyer puts on that last increment. He puts that price on the volume of demand of which this is the last increment, because he esteems such last increment that much—sets that much store by its possession. Thus, if his schedule for apples reads as follows: one peck wanted if price is $2.00; two if price is $1.50; three if price is $1.25; and so on, this shows that he *values* a single peck at $2.00; a second at $1.50; a third at $1.25; and so on.

**Valuation Based on Significance.**—But, again, these valuations of the prospective customer must have something behind them. There must be a reason for valuing the apples in our illustration. That reason, immediately speaking, is the fact that the apples have *significance* or importance for the welfare of the prospective customer, and the further fact that he *realizes* that they have such significance. Because of these facts he attaches value to the apples and gives measurement to that value in terms of a common measure, usually money. In short, the valuations of the customer are his

*estimates of the significance or importance to himself* of the several increments of apples or whatever good is in question.[1]

It is hardly necessary to say that these valuations, these estimates by the individual of the significance of particular increments of goods, lack the precision which would be required in most other measurements of a scientific character. Nevertheless, these estimates are very real and sufficiently precise for the purposes of economic life, as is abundantly proved by the fact that, if in view of all the circumstances the price seems reasonable, our buyer *actually decides* in favor of the apples rather than using his money to buy something else.

**Significance Based on Utility.**—We have seen that the demand prices of buyers grow out of the valuations which those buyers put on the goods, and that these, in turn, grow out of the significance or importance to said buyer of the goods in question. But, plainly, we are not yet at the bottom of the matter. Why do goods have significance to the individual, and what determines the degree of their significance? The immediate, and from the economist's standpoint, the ultimate ground of signficance or importance in any commodity or service is the *utility* of that commodity or service, its capacity to satisfy wants, to make some contribution to our welfare. Because things can bring us advantage, they have significance or importance for us; having such significance, we value them; because they are valued by us, we stand ready to give a price for them. *Our demand prices for things, therefore, are the final result of a series of causes beginning with utility.*[2]

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[1] Remember that these are the valuations of the individual interested, not those of some absolute intelligence outside himself nor those of society as a whole. How far they are of interest from the standpoint of society at large will have to be considered in later connections.

[2] The above account of the causes, forces, lying behind, and determining demand schedules confines its attention to the demand schedules of consumers in the strict sense, that is, persons who wish to buy the commodity in question as a means of satisfying some want, though some portion of the demand for the same commodity often comes from *producers*, while the demand for some types of goods comes almost entirely from producers. It can scarcely be doubted, however, that, *indirectly and in the long run*, the attitude of consumers must be decisive in determining that of producers, else the latter would find themselves bankrupt. The processes by which this result is reached are necessarily obscure; but some notion of their character will be brought out in Chapters XXIX and XXX.

**Diminishing Marginal Utility.**—Our analysis has brought us to utility as lying behind and determining the significance of products to buyers, just as these lie behind and determine the valuations of buyers, just as these, in turn, lie behind and determine the demand prices of buyers. From the standpoint of the economist, this brings us very near the end of the matter. It might indeed be argued that, since utility is the capacity to satisfy wants, we ought now to undertake a careful study of the nature and origin of *wants* and the peculiarities or qualities of things which fit them to satisfy those wants. As a matter of fact, we mostly leave these things to investigators in other fields. In the present connection, anyhow, we shall confine ourselves to a single fact about wants, and that a fact which is so familiar to everyone that, when understood, it is at once accepted. That fact is that, in most cases, the process by which a want is satisfied to the point of satiation is one which may be characterized as a *declining progression.* That is, said satisfaction has to take place in successive stages and the addition to gratification derived from the addition of a unit of commodity is each time less than proportional. Thus, if one were quite hungry, a single slice of bread would give very great gratification; a second would give somewhat less; a third decidedly less; and so on; till satiation was reached.[3] It follows that the gratification derivable from the last unit of a given quantity of any commodity is bound to be smaller than that derivable from the last unit of a smaller quantity of that commodity. But, in view of our use of the word "marginal" in other connections, we naturally designate the gratification derivable from the last unit of a given quantity of any commodity the "marginal" gratification. Hence we say that *the marginal gratification derivable from a given quantity of any commodity diminishes as the quantity of that commodity consumed increases.* But it is, of course, implicit in this statement that the *power* of marginal units of any commodity to *give* gratification diminishes as the quantity in possession increases. Further, the power of a commodity to give gratification we call its *utility.* Hence we have the following principle:

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[3] Doubtless this account of the matter does not apply to all cases; but it is of sufficiently general application to be of great importance.

**Principle**—The Principle of Diminishing Marginal Utility.

*The marginal utility of any economic good varies inversely as the quantity at disposal.*

**Diminishing Effective Significance.**—Since, as we saw above, the utility of any commodity is the source from which its significance or importance is derived, it follows that, if the marginal utility of a given commodity diminishes as the quantity at disposal increases, the marginal significance of such a commodity must also diminish in the same way. But we can go further. Not only does the marginal significance of such a commodity diminish with its quantity, the *effective* significance of *every* unit of that quantity also has the same experience. That is, its effective significance cannot be greater than the significance of the marginal unit. The true importance of any commodity is determined by the loss which we should experience if deprived of a unit of that commodity. But, since different units of commodity are interchangeable, it is quite certain that, if deprived of a particular unit, we would not permit ourselves to be deprived of one of the higher gratifications to be derived from such a unit of that commodity. Instead, we should relinquish the lowest gratification of all, withdrawing, if necessary, the unit formerly put to the marginal use from that marginal use and devoting it to the higher service which had formerly been cared for by the lost unit. In short, *the effective significance of any commodity varies inversely as the quantity of that commodity at our disposal.*

**Diminishing Valuation.**—Having now reached the conclusion that the significance of a commodity varies inversely as the quantity in possession, we inevitably take another step and recognize the existence of a similar law for valuation. Since the effective significance or importance of a commodity diminishes with the quantity at our disposal, it necessarily follows that our valuation of such a commodity takes the same course. If a unit of a given commodity has less effective importance than hitherto because I have at my disposal a larger quantity, and my want schedule for that commodity has not altered, I will naturally evaluate that commodity at a lower figure.

That is, *the consumer's valuation of a commodity varies inversely as the quantity at his disposal or that conceived to be at his disposal.*

**Diminishing Demand Prices.**—We come, finally, to the demand prices of the consumer. These, surely, must take the same course as his valuations. That is, when he is contemplating the purchase of a certain number of units of a commodity, the price upon which will be conditioned his taking that quantity will depend on the valuation which he has put upon said quantity. His demand prices, therefore, will take the same course as his valuations. That is, *the demand prices of a prospective buyer vary inversely as the quantity of the commodity which he conceives himself to be purchasing.*

**Inverse Elasticity of Demand.**—Very little reflection should be necessary to convince the student that, in the principle just brought out, we have, in part anyhow, the explanation of the principle of the Inverse Elasticity of Demand discussed in Chapter XX. That is, demand diminishes as price rises and increases as price falls, *because* the per unit valuation of a smaller amount is greater than that of a larger amount.[4]

**Social Demand Schedules.**—Thus far we have considered only the demand schedule of the individual. But, obviously, the demand schedule which plays a decisive rôle in the general market is the *general* or *social* schedule. Hence we must bring our discussion to a focus in the general or social demand schedule. We note first that, behind the general demand schedule for any commodity, there lies a general valuation schedule for that commodity just as, behind the individual demand schedule, there lies an individual valuation schedule. This follows from the fact that adding together the individual valuation schedules for a given commodity would necessarily give a schedule bearing the same relation to the general demand schedule for that commodity as an individual's valuation schedule bears to his demand schedule. But, now, the question very naturally arises: Do we need this concept of a general valuation schedule at all? Seeing that all the individual valuation schedules are embodied in

[4] See Note 11, Appendix.

the individual demand schedules, while these in turn are embodied in the general demand schedule, is not the latter concept, the general demand schedule, adequate to meet all our needs in setting forth the principles which govern price? The general answer to this question is that the concept of a general valuation schedule is needed when we try to get back to *the more ultimate determination* of price. But the adequate development of this point must take us back to fundamentals.

**Social Discrimination Among Wants Necessary.**—First, we must remind ourselves that all economic life is primarily concerned with providing us with a particular kind of a larger class of goods which we can not usually have in sufficient abundance to satisfy all our wants. Since they are goods of this character, it is incumbent on us to *discriminate* among them—decide what ones we can most easily spare. In the case of the individual, this need is easily met. His total *income* tells him the *total amount of goods* which he can hope to enjoy; his *valuation schedules* enable him to decide *what particular goods* should make up this total. It follows that, in the case of the individual, when we try to get to the more ultimate causes which determine his values, we do not hesitate to affirm that the value of any particular commodity tends to be a value which expresses approximately the *marginal significance or importance* of that commodity.[5]

If, now, it were possible or desirable that all cooperation in economic matters should cease, what has just been said would end the matter. But this surely is out of the question. A cooperative system for satisfying economic wants is inevitable. But, in any such cooperative system, *conflicts are bound to arise,* not only between the different wants of the same person, but also between *the total wants of different persons.* In consequence, it becomes necessary for the state—politically organized society—to determine authoritatively what are the relative importances of wants from the *general or social point of view.* We now ask: Is it reasonable to affirm that the decisions of society on this matter are virtually embodied in what we

[5] Not without exceptions.

have called general valuation schedules and, hence, in actual demand schedules, so that *the latter can properly be treated as revealing the relative social importances of wants and goods?* In answering this, we will begin by considering how *a socialistic state* would go about determining relative social importances.

**Socialistic Solution of the Problem.**—The method proposed by socialism for determining the relative importances of wants, involves two steps: (1) *fixing* the wages and, so, *the income* received by each person, and (2) *authorizing* each person *to utilize* his income in satisfying his wants in such fashion as *seems best to himself*.[6] The first of these steps would disclose the decision of the state as to the relative importance of the *total* wants of each person over against the total wants of *other* persons. Doubtless the *immediate* consideration in the fixing of the individual's income would, in large measure, be the estimated importance of the *services* expected from him; but, since the *end* for which income exists is *the satisfying of wants,* their decision would in effect be *a decision as to the relative social importance of his total wants.* Thus, if, under such a regime supposed to be established in the State of Michigan, the authorities should make the salary of the president of the University five times as great as that of a professor, though this would primarily show that in their opinion the services of the President had an importance five times as great as the services of a professor, it would also show that, in their opinion, satisfying the total wants of the President to a certain degree was five times as important as satisfying the wants of a professor to the same degree.

The second part of the socialist plan, authorizing each person to utilize his income as he thinks best, would virtually recognize *his* valuations as being *social* valuations which the state was bound to enforce. In consequence, the general valuation schedules, conceived as being obtained by adding together the individual valuation schedules, would be *recognized as social valuation schedules,*—schedules representing the *relative social importances* of *different wants* and, therefore, of the *goods* necessary to satisfy those wants. Still further,

[6] Naturally with such limitations as the state conceives to be necessary in the public interest.

the general *demand* schedules, embodying those valuation schedules, would be accepted as representing the relative social importances of *goods*.

**The Present Order: Its Solution.**—The above has given us the socialist solution of the problem raised by the conflict of wants inevitable in a cooperative economic order. The solution implicit in the present order *is, in general, the same*. That is, it breaks the process into two parts: (1) determining the relative social importance of the total wants of each person by determining the income of that person, and (2) determining the relative social importances of the *different* wants of that *one* person by accepting his estimates of those importances. The *difference* between the two solutions is to be found in *the method by which is determined the income* of each person and, therefore, the social importance of the *total* wants of that person. At the outset, socialism would eliminate wholly or in part certain types of private income permitted under the present order, notably profits, rent, and interest. Further, the principal socialist type of income, wages, would probably show different results because the state, being the sole employer,[7] would probably prove able to determine each wage more or less *arbitrarily*, at some points placing it *below* the standard which had been set up, at others placing it *above* that standard. In contrast with the socialist method of determining income, the present order pursues the following plan. First, it establishes a highly complicated system of property rights in goods of all kinds, and adds to this an even more complicated system of regulations with respect to the exercise of these rights. Secondly, having prepared the stage in this fashion, it turns the individual loose to complete the process as best he can.

**Our Demand Schedules Socially Valid.**—We have seen that, while the socialist way and our way of determining the relative importances of conflicting wants are in general the same, in one important detail, the determining of individual incomes, they show a notable difference. Further, most of us would be disposed to believe that the results of our method are much less satisfactory than we

[7] This would need to be qualified because the subdivisions of the general state would probably insist on acting more or less independently.

should, on *a priori* grounds, expect the results of the socialist method to be. In view of this, is it not quite unreasonable to affirm of our own order what it was all right to affirm of the socialist order, namely, that the general demand schedules can properly be treated as revealing the relative social importances of conflicting wants and, so, of different goods? Is not the unsatisfactoriness of the system of distribution so vital an element in the situation that it destroys the validity of the whole contention? *A negative answer seems unavoidable. Logically, we must look on the general demand schedules as disclosing the true relative social importances of different wants and different goods.*

The reason is not far to seek. The system for distributing income which is now in operation is *the creature of society,*—it could not last a day save for the strong arm of the state. Organized society is thus responsible for its *existence;* hence is responsible for its *defects;* hence must be judged to have *decided* that, everything considered, that system *best represents what the welfare of society calls for.* Not a few of us think otherwise and hope that in time the system will be greatly improved. But, so long as that system continues to be maintained, we have no choice,—society has no choice—but *to hold that the individual valuation schedules, as adjusted to the actual system of income-distribution,* and *the general valuation schedules derived therefrom, truly represent relative social importances.* In consequence, society has no choice but to hold that the general *demand* schedules which embody those valuation schedules truly indicate *the relative social importances of the different wants of citizens in general* and, so, of the different *goods* which must be produced to satisfy those wants.[8] It follows that, in so far as the economist can trace the determination of prices through general demand schedules back to individual valuations, he is thereby tracing them back to *relative social importances.*

[8] This must not be interpreted as meaning that society should *always* accept the general demand schedules as representing true relative importances,—should *never* take into account what is sometimes called the *absolute magnitude* of wants, for example, the want of a starving man for food as compared with the want of a well-to-do person for a diamond ring. Organized society, with general approval, undertakes to provide in socialistic fashion for many wants the importances of which are not adequately represented in the general demand schedules. Notable examples are providing public hospitals, public play grounds, public education, and so on.

# CHAPTER XXV

## NORMAL SUPPLY SCHEDULES

In the preceding chapter we considered various topics preliminary to the study of normal price, including normal demand schedules. In this chapter we continue the study of preliminaries, especially matters connected with supply.

**Market Supply Schedules.**—The supply schedule with which we were concerned in our first study of the processes of price-determination is most naturally designated the *market* supply schedule. In that schedule we are looking at the *immediate* attitude of sellers. At a certain time, for a great variety of reasons, sellers are ready to sell a certain number of units of a commodity if price is so and so, another number if price is something else, and so on. This attitude of sellers is a momentary one,—an ever-changing one. If they hear a little different news as to conditions in other markets, the probabilities of demand in some other community, or the success of production during the current season, they will alter their supply schedule, will change the quantity they are willing to sell at any particular price.

**Normal Supply Schedules.**—We wish now on the other hand to study the attitude of sellers throughout a longer period. During a season, a year, or a series of years, sellers are acted upon by certain larger and more permanent forces, and under the influence of those forces, they stand ready to sell a particular number of units of a commodity if price is so and so, another number if price is something else, and so on. This attitude of sellers is represented in the normal or long-time supply schedules. As a final preliminary to our study of actual normal price and its determination, we must now investigate the nature of these normal supply schedules.

**Different Classes of Goods.**—In undertaking this task, our first step is to note some fundamental differences among goods, since these differences are responsible for marked differences in the normal supply schedules of such goods. The most important of these differences gives rise to two main classes of goods: (1) those goods the stock or output of which is *increasable*—producible goods—and (2) those of which the stock or output is *fixed*. The first obviously includes the great majority of commodities in everyday use, food, shelter, clothing, etc. The second class includes a few objects of direct use in the satisfaction of wants, for example, the paintings of an artist now dead; but it mostly consists of certain primary factors in production derived from nature, for example, iron ore or copper still in the earth and the services of land conceived as independent of improvements. The former of these two classes again divides for our purpose into two sub-classes: increasing-cost and constant-cost goods. Accordingly, we shall study more or less fully the supply schedules of three types of goods: (1) Increasing-Cost Goods; (2) Constant-Cost Goods; and (3) Fixed-Supply Goods.

## I

## Costs and Supply Prices

The most obvious, as also the most important, fact about the normal supply schedules of producible goods is that the *supply prices* of such a schedule, that is, *the prices on which depends the forthcoming of supply,* are fixed by *costs of production,* including, of course, suitable remuneration for such contributions as are made by the entrepreneur himself. If a certain price will insure to the entrepreneur that he will get back the money he has put into a product and in addition will get a reasonable return for his own direct contributions, he will surely be ready to furnish the product at that price. Doubtless he would be glad to get a higher price; and, under some conditions, he may be able to do so. But that fact has no relation to our present problem, which is concerned solely with the normal supply schedule—the series of mutually dependent supplies and prices. What price will be necessary to secure the forthcoming of a given supply? or what volume of supply will follow

the appearance of a given price?—these are the questions of immediate interest. And the general answer is that the price which will be necessary to bring forth a given supply is that price which equals the greatest cost of producing said supply, supposing differences of cost to exist; and the volume of supply which will follow the appearance of a given price is that volume which will have as its greatest cost an amount equal to said given price.

**Test of a Cost.**—It follows from the relation between cost and supply prices above brought out that one method of testing whether or not a given element is a cost is to see whether or not it appears in the supply price. Supposing competition to be free, does the producer insist on getting a price higher than would otherwise be necessary just because the element under consideration has to be supplied? If the answer is "yes," that element is certainly a cost; if the answer is "no," that element is not a cost.

## II

## Theory of Cost

**Concerned with Entrepreneur's Cost.**—We have seen that the supply prices of the normal supply schedules of producible goods are quite certain to be in general the costs of production. But, as there is considerable room for misunderstanding with respect to the meaning of cost, it seems necessary to make some more specific comments on this matter. First, it is important to note that the costs with which we are here concerned are *costs to the entrepreneur,* the person or persons responsible for the production of goods. This obviously grows out of the fact that we are interested in costs *as determinants of supply prices,* and supply prices are the prices which the entrepreneur sets up as necessary to the forthcoming of supply.[1]

[1] There is a good deal of criticism directed against the prominence given by most economists to the standpoint of the entrepreneur. This criticism does not seem to me justified. The entrepreneur is the person, natural or legal, who undertakes the responsibility of production—decides the kind, amount, and method of production. As entrepreneur, he *must* hold the place of first importance. Perhaps a function of such magnitude ought not to be delegated to private persons at all; but whoever undertakes this task necessarily holds the center of the stage.

**Concerned with Immediate Costs.**—In saying that we are concerned here with entrepreneur's cost, we almost of necessity affirm that we are concerned with *immediate* rather than *ultimate* or *intermediate* costs. The steel which a producer of automobiles buys as raw material is of course a *product,* and so has *its* own cost which indirectly must be a cost of the *automobiles.* In turn, the factors necessary to the producing of steel, namely: pig iron, coke, etc., are products having their costs, which costs, therefore, must indirectly be costs of the *automobiles,* remoter costs, intermediate costs. Finally, there must be factors beyond which we cannot go, the original raw materials given by nature, the earth itself, the services of laborers, etc.,—what we call ultimate or *primary* costs.[2] But, though there are costs other than the immediate ones, we are not, generally speaking, concerned with such other costs, in our present connection. To this it is necessary to make the one exception of primary costs *incurred by the entrepreneur himself* and not to be purchased from other persons, for example, the risk burden of the business.

**Money Costs: Explicit and Implicit.**—The largest constituent in entrepreneur's cost is usually direct *money* cost—the money outlay for factors of different sorts which he *buys on the open market,* for example, raw materials, fuel, machinery, labor, the use of capital, etc. A closely allied constituent consists of the *money value* of such of the above purchasable factors as *the entrepreneur* himself furnishes. Thus, the *individual* entrepreneur commonly supplies labor services of much importance which he might purchase on the open market. Again, in almost all cases he is obliged to put in some capital of his own. Further, he may use his own land, instead of renting from someone else. Now, for his labor services, he will naturally try to get as good wages as he would have to pay others for the same services. Similarly, on the capital which he put in, he will of course insist on getting the usual interest. So, for the use of his land, he will expect as large a return as the rent which he would

[2] The former designation lays stress on the logical finality of these costs; the latter places them in their temporal or causal order.

have to pay another landlord. Accordingly, in estimating what the product costs him, he will make allowances for all these items. They will, therefore, constitute a part of the cost of production,—quasi-money costs, we might call them, or *implicit money costs,* as contrasted with his direct money outlay which we may call *explicit money costs.*

**Cost of Entrepreneur's Contribution.**—We have just remarked on two constituents of entrepreneur's cost, explicit and implicit money costs. There is still a third which must not be ignored. In addition to the various contributions often made by the entrepreneur which he might buy from others,—*implicit* or quasi-money costs,—there is another, *one corresponding to his distinctive function as entrepreneur.* Some person natural or legal must undertake the responsibility of deciding, willing, that production shall go forward, else of course there will be no production. This distinctive function of the entrepreneur is, therefore, a factor in production.

But the fact that the distinctive contribution of the entrepreneur is a necessary factor in production is not sufficient to make it an element in cost. In order to be such an element, it must also be an *economic* factor, a factor having an economic character, having value. But the question whether this factor has an economic character is not so easily determined as in the case of the other factors which have been considered. Just because the services of labor, of capital, and of land are purchasable on the open market, we have no difficulty deciding whether or not they have value, for that is evidenced by the prices at which they are bought and sold. The distinctive function of the entrepreneur, on the contrary, cannot thus be bought and sold. The assumption of final responsibility and a certain residue of management cannot be separated from the ownership of the business, hence cannot be delegated to anyone else, cannot be hired from anyone else, therefore cannot be bought and sold, so cannot have a price to prove its economic character. It follows that we must look elsewhere for the value element needed to show that the function of the entrepreneur is an *economic* factor. That "elsewhere" is the price at which the entrepreneur stands ready to supply the commodity in question—his supply price. If said supply price should contain some-

thing in excess of the costs hitherto enumerated, the function of the entrepreneur would be an economic factor. Finally, the presence in the supply price of this "something in excess" would prove that profit, the remuneration of the entrepreneur, is an element in cost.

**Meaning of Profit.**—But at this point it becomes quite important to avoid a possible misunderstanding as to the meaning of this word profit. Profit is the implicit price of *those services of the entrepreneur which are peculiarly his own, distinctive of his office.* We do not have a profit, in the strict sense, just because we have a return in excess of the money *outlay,* the *explicit* money cost. Such an excess would very likely be necessary to cover the wages due the entrepreneur as a laborer or to cover the interest due him as having supplied a portion of the capital. The excess in return which spells profit must go *beyond the implicit,* as well as the explicit, money cost. Thus, a small merchant investing $2,000 and clearing $1,600 a year from the business might be thought of as getting 80 per cent on his investment; when in fact $1,300 out of the $1,600 was the wages of his labor as manager, salesman, etc., while $120 was interest on his $2,000 at 6 per cent; *so that his true profit was only $180 or 9 per cent.*

**Profit a Part of Cost.**—That this peculiar contribution of the entrepreneur, or the profit representing that contribution, is at the present time a true cost of production can scarcely be doubted, and is seldom denied by economists.[3] Generally speaking, marginal entrepreneurs, those who will drop out if price falls, include in their supply price something in excess of explicit and implicit money costs. During the late war, most governments, when making contracts for supplies and when taxing business, assumed that, as a matter of course, producers must be allowed to make from ten to fifteen per cent gross profit or five to ten per cent *net* profit—profit in excess of interest. It seems to follow that, in the opinion of practical men, true profit commonly is, and in fact must be, an element in cost.

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[3] Some economists hold that profit would not continue to exist as a cost under a static set of conditions. Some even hold that this element is not a part of cost at present. For comments on some arguments in support of this opinion, see Note 4 in the Appendix.

**Interpretation of Profit.**—We have seen that profit forms a necessary element in the cost of production: the supply price of a commodity—the price necessary to bring out the marginal units of supply—must be great enough to include a profit to the entrepreneur as well as to cover the other items which have been enumerated. This topic, profit, must not, however, be passed without a further word of explanation as to how the word is to be interpreted. There has been from the first, and continues to be, considerable confusion in economic writing in respect to the proper *method of computing profit.* Even business practice is not wholly uniform, though the interpretation which will here be given is probably the generally accepted one. Profit proper should be computed on the basis of *the capital invested,* not on the basis of *the outlay.* Thus, let us suppose that $50,000 is invested in a given business; that this business yields an annual output of 100,000 units; that the cost per unit—profit not included—is $4; and that the rate of profit proper required is 8 per cent. Under these conditions, the producer does not say: "Since each unit of product costs me $4, and since 8 per cent of this is $.32, I will supply the commodity in question for $4.32"; instead, he says: "Since I have in the business an investment of $50,000, since 8 per cent on this is $4,000, and since the other costs equal $4 per unit, I will supply the commodity at $4 plus $4,000 divided by 100,000 units, that is, for $4.04." [4]

**Rent Commonly a Part of Cost.**—In the above account of entrepreneur's cost, it was more than once implied that such cost includes *rent,* that which is paid for the use of land unmodified or modified only by such improvements as are practically irremovable and indestructible. We seem to be justified in doing this, in view of the precise nature of the problem before us: What are the elements included in the cost of the individual entrepreneur? For, from this

[4] This of course does not mean that producers would not be glad to get the larger profit reached by the former method of computation. If they are regulated by government and have to get the consent of government in fixing their price, they often try to induce the regulator to adopt the method of reckoning which gives the larger profit. But where competition is free, producers will in the long run offer to supply the commodity provided the price is high enough to give them *a profit on the capital actually invested.*

standpoint, rent must, in the great majority of cases, be looked on as a part of cost. The reason for this is that, in the great majority of cases, a given piece of land may be put to many different uses, and the individual entrepreneur will be obliged to compete against other entrepreneurs who want that land for other purposes, just as he would be obliged to compete against them for labor services or capital services. That is, rent would participate *in determining the entrepreneur's supply price* just as truly as wages or interest.

**Disutility or Pain-Cost Not Included.**—One or two further comments will complete this long discussion of cost of production. First, we note that entrepreneur's cost, as above described, *does not in the main include what is often called psychic or disutility cost.* What this sort of cost means is best seen in the case of labor. While to the entrepreneur the cost of labor is his money outlay for that labor, to the man who supplies it, the cost of that labor may be the discomfort, weariness, lack of leisure, which supplying the labor involves; that is, he may think of these as constituting the sacrifice which he is making when he furnishes the labor.[5] Some writers, indeed, have insisted that this is the only cost which deserves the name. It is the true, the real cost of production, they say. Doubtless such a view of the matter has some point; but it is not sound doctrine in our present connection. We are here concerned with *supply* prices, and are interested only in those costs which influence the entrepreneur in fixing his supply prices. But, these, obviously, must be *his own* costs, *his own* sacrifices, not those of the persons from whom he purchases particular contributing services. But his costs, in the case of the contributing services of other persons, are plainly the sums of money which he pays for those services. When we come to consider the principles governing the prices of the primary factors of production, those factors behind which we cannot go, such as the original raw materials, the uses of the earth's surface, labor services, etc., we shall find that, with some of these, disutility does play, or may play, a part in determining their prices. In that

[5] The laborer may, however, have in mind the fact that he can get wages from some other employer. In that case we have, not a psychic or disutility cost, but an *opportunity* cost.

part of our study, therefore, we shall have to recognize the influence of disutility. But in our present connection it is of interest to us only in so far as it determines the attitude of the entrepreneur himself,—that is, his attitude in settling what reward is necessary to compensate him for the peculiar sacrifices incident to his position as entrepreneur, in other words, what profit he must insist on having.

**Prices of Cost-Goods Constant.**—Another comment which needs to be made in this connection is that from the standpoint of normal price, the prices of cost-goods, materials, labor, etc., are assumed to be *constant, fixed.* We conceive the entrepreneur as looking over the field and saying to himself: I shall have to pay so much for a place of business, so much for material, so much for labor, so much for the use of borrowed capital, and so on. In addition, I must get something for the capital and labor which I myself put in; and, as I am not in the business for my health, I must get something more for my trouble and risk, that is, I must have a profit. From these data, he computes what he must fix upon as his supply price. In doing this, he assumes the fixity of the prices of those goods and services which he has to buy. Of course, he knows that, as a matter of fact, those prices are not finally fixed, that they are liable to change even during the productive process. But, roughly speaking, they *do not* change. As a totality, they are fairly well fixed for the period of time with which he is concerned. Further, it is just his business to assume the burden of taking the inevitable risk of such changes. That risk he in part covers by adding something to his supply price; while at the same time he makes another addition to that supply price, in order to provide compensation to himself *for taking the chances* involved.

## Illustrative Problems

1. "Wages are the *remuneration* of the laborer for the sacrifices which he has to make in supplying labor services. It is ridiculous to call them *a cost* of production."

Is there any reason why we should not say that wages are at once a cost and a remuneration?

2. To one laborer, on account of poor health, the day's work in a particular factory will mean much greater disutility than it means to another laborer in the same factory. Will this difference affect the supply price of the commodity produced at the factory?

3. A tailor carrying on business in a small town tells a prospective customer from Detroit that he can make him clothes more cheaply than an equally good Detroit tailor because his costs are lower, mentioning among other things the rent of the site where his shop is located. Can he legitimately treat rent as a cost in this case? Defend an affirmative answer.

4. A railway lawyer is trying to prove before a court that a proposed 2 cents per mile passenger rate is unjust to his road in that it will not permit paying a reasonable profit, say 6 per cent, on the investment. He admits that this rate will be realized on the physical equipment of the road, valued at $5,000,000; but argues that the company has to provide for a pay-roll of $50,000 every month and ought to earn profits on this as well. Now this claim may or may not be reasonable. It all turns on whether providing for this pay-roll involves . . . Finish the sentence.

## III

## The Normal Supply Schedules of Increasing-Cost Goods

We have seen that the supply prices of the normal supply schedules of producible goods are in general costs of production. But producible goods are not all of one kind. As noted in the beginning of this chapter, we distinguish at least two different classes of such goods in studying their normal price, increasing-cost goods and constant-cost goods; and the supply prices which cost gives to these different sorts of goods are quite different. We take up first "increasing-cost goods." The general character of these goods was brought out in Chapter XI. The larger the amount of these goods we try to produce, the greater will be the cost of the additional units of product. In other words, the larger the amount produced, the greater will be the marginal cost of production. But the cost of producing any particular part of output determines the supply price of that part of output; hence the marginal supply price must rise with every increase in the output. As a result, the normal supply schedule of increasing-cost goods must be of the sort earlier called *typical,—sup-*

*ply varying directly with price and vice versa.* The table and diagram given for a typical market supply schedule on page 270 would, therefore, illustrate well enough the normal supply schedules of increasing-cost goods. With every rise in price, supply increases; with every fall in price, supply diminishes.

## IV

### The Normal Supply Schedules of Constant-Cost Goods

The second class of producible goods with which we have to deal is *constant-cost goods.* By these we mean goods the output of which can be increased from a very small to a very large amount—so large as compared with the natural range of demand that it may be called *indefinitely* large—*without substantial change in the cost of production.* Emphasis is laid on "substantial," since it is probable that any change in the volume of output can seldom be effected without some change in cost. But, in the case of a host of manufactured commodities, the degree of change in cost necessary to effect a given change in the volume of output is practically negligible. Thus, only under quite exceptional conditions would the cost of producing the numberless articles supplied by five- and ten-cent stores be increased by any ordinary increase in the amount supplied. Doubtless it is possible to have in mind periods of time so long that decided changes in cost prices would take place. But normal price, from its very nature, is not concerned with periods of such length. The very idea or normality implies constancy with respect to the principal conditions; for, without such constancy, there would be no price which tended to prevail throughout the whole period, that is, there would be no normal price.

The character of the normal supply schedule of goods of this sort is easily seen. By hypothesis there is no change in cost over a wide range of output. It follows that these goods have *but one* supply price. At any price below this one, *no* supply will be forthcoming; at this price, an *indefinite* amount will be available; and, at higher prices, *no more* will appear, since the amount at the one price is indefinitely large. It follows that the supply schedule of constant-cost goods takes the following form: At prices below the one supply price,

supply is zero; at the one price, supply is indefinitely large or varies within the range specified in the hypothesis; and, at prices above the one, supply remains at the same indefinite figure as at the one price. Such a schedule is given in the first 2 columns of the table on page 333.

**Output Adjusted to Demand.**—One peculiarity of the supply schedule of this particular type of producible goods seems to call for special comment. This is the statement that, at the one supply price, supply is *indefinitely large*. Now this account of the matter must not be interpreted as meaning that producers *actually get out and put on the market* an indefinitely large amount of the product involved. Supply always means the amount sellers *stand ready* to dispose of at the given price; and, in the case of normal schedules for producible goods, standing ready does not necessarily involve that the given volume is actually produced if the given price is reached. Producers stand ready to go this far, but have time to experiment with the situation and of course will not effect such production unless they are warranted in doing so by the actual *demand* conditions. If they cannot usually market the goods they will not produce them, though their supply price has been reached. The appearance of their price is not alone sufficient to insure production. *The volume of product is consciously adjusted to the actual demand.*

## V

## The Normal Supply Schedules of Fixed-Supply Goods

The preceding section was occupied with the consideration of the supply schedules of producible goods. We now take up the schedules of goods which are strictly *non-producible* or, for some reason, behave as if they were of this sort. They may be goods of which the stock is fixed, like the land on the earth's surface, or goods having a regular output but one which is fixed, like the annual uses of land as a site or as a something on which a crop can be raised. The former we might call fixed-stock goods; the latter, fixed-output goods. We here designate them *fixed-supply goods,* because, as will appear in a moment, the situation makes their normal supply constant and so makes this a characteristic mark for them all.

**Supply Price Anything above Zero.**—We may take as one of the most important of these fixed-supply goods, *the uses of land* just mentioned. Thus, within the area of a given city, there are just so many sites, say 10, of a certain degree of desirability for business purposes. Broadly speaking, no human action can increase or diminish their number. From the standpoint of normal price, what will be their supply schedule? Doubtless their *market* schedule would present itself as similar to the one given on page 270. That is, the number offered would vary directly with the price. But the situation for the *normal* schedule is different. Normal price is not concerned with momentary tendencies as is market price, but with tendencies covering a period of some length, a period long enough to eliminate uncertainty with respect to real values and the real attitudes of possible buyers. Now, over any such period, the attitude of owners will be that *all the uses of such sites must be marketed at some price*—whatever price can be obtained. The site uses not being produced, the owners cannot save a cost of production by withholding them from the market. Those owners would prefer to get higher prices; but anything is better than nothing. Hence, in the long run, owners will offer all these uses of sites for whatever price they will bring.

In this particular case of sites, there is another consideration which makes the period necessary to bring all the sites on the market a rather short one. While some types of non-producible goods are capable of indefinite preservation, hence can be reserved for future use, and so can profitably be withheld from the market for considerable periods,[6] nothing of the kind is true of the uses of a site. These cannot be preserved at all; they are absolutely perishable,—live but for the moment. If the owner of a site does not sell the 1920 use of that site during 1920, he can never sell it at all. He can of course sell the 1921 use, the 1922 use, and so on; but the 1920 use is gone forever. Doubtless, in the process of bargaining with possible tenants, it may be of advantage to owners to forego the opportunity to

[6] Doubtless the owners of such goods will not carry out this policy indefinitely. The risks are too great; and man, being mortal, his interest in possible future gains is limited.

dispose of some of the uses of a site. But the operation is evidently an expensive one; and will not be engaged in to an indefinite extent.

From all this it follows that, in this case of the ten sites, the supply of uses will be *just ten at every price:*—the supply will be a fixed, unchanging, supply. Accordingly, the normal supply schedule of these sites would read as in the accompanying table: 10 offered when the price is $12,000; 10 offered when the price is $11,000; 10 offered when it is $10,000; and so on.

| Price 000 dollars | Supply No. of sites |
|---|---|
| 12 | 10 |
| 11 | 10 |
| 10 | 10 |
| 9 | 10 |
| 8 | 10 |
| 7 | 10 |
| 6 | 10 |
| 5 | 10 |
| 4 | 10 |
| 3 | 10 |
| 2 | 10 |
| 1 | 10 |
| .9 | 10 |
| .8 | 10 |
| .7 | 10 |

**Cases Among Producible Goods.**—To get a perfect case of fixed-supply goods, we chose a special kind of non-producible goods, the annual uses of land. We find, however, that cases of this sort arise among *producible* goods. Thus, the designation fixed-supply goods is obviously applicable to goods which were produced by some one no longer living. Another case is supplied by goods which have gone out of fashion. Such goods can, literally speaking, still be produced; but, not being longer wanted, they *will* not be produced,—they are *economically* non-producible. A much more important case is that of some agricultural product between two harvests. Thus, roughly speaking, our stock of wheat cannot be increased from the end of the 1920 harvest to that of the 1921 harvest; so that, during this period, the supply could not be extended beyond the existing stock. On the other hand, the prospect of a new crop putting in an appearance usually insures that the whole existing stock will pass into supply during the current year. Thus, the normal supply *for the year* is identical with the existing stock, and so that supply is a fixed one.

It is plain that these later cases of fixed-supply goods fulfil the condition from which their designation is derived much less per-

[1] Remember that wheat is a fixed-supply good only when we are looking at it for the brief period between two harvests. Over a longer period, it is an increasing-cost good, having its price determined by a different law.

fectly than the one first chosen for illustration. They do, however, fulfil that condition in a sufficiently large measure to merit the designation. In the process of price determination, they behave, in a general way, as do the strictly non-producible goods. It should be added that cases of this sort—quasi-fixed-supply goods we might call them—are likely to appear temporarily in quite unexpected places, in connection with all sorts of goods. But these will more naturally receive comment in a later connection.

# CHAPTER XXVI

## PRINCIPLES GOVERNING THE DETERMINATION OF NORMAL PRICE

In the two preceding chapters we have discussed normal demand schedules, with the significances to consumers which lie back of them, and normal supply schedules, with the costs of production which in two cases lie behind these. It is through these normal demand and supply schedules that the normal prices of goods are determined.

We are now, therefore, in a position to take up the direct study of those principles which are commonly given as governing normal price.

We shall treat in succession the three classes of goods the supply schedules of which were studied in the last chapter, taking them up in reverse order,—fixed-supply goods, constant-cost goods, and increasing-cost goods. By this process we prepare ourselves to handle almost every case of normal price determination; for the three classes of goods named have their normal prices determined in three different ways, and those three ways include practically all the ways, and indeed quite all the most important ones, in which normal price *can* be determined.

Speaking generally, we may say that the goods of the first class have their prices determined from *the demand side only*—through the prices of the demand schedule; that goods of the second class have their prices determined from *the supply side only*—through the prices of the supply schedule; and that those of the third class have their prices determined by elements *from both demand and supply*—through the prices of both the demand and the supply schedules.

We begin with that class the prices of which are determined from the demand side only.

## I

### Normal Price of Fixed-Supply Goods

We will take as an example of fixed-supply goods copies of the Basel edition of Sir Thomas More's Utopia. Suppose that, at about the same time in the year 1925, three or four finds are made, bringing on the market a new supply of these books amounting to ten copies. Suppose, further, that the demands of libraries and private collectors are such that the aggregate demand schedule is as follows: 1 copy wanted, if price is $200; 2 copies, if price is $175; 4 copies, if $160; 6 copies, if $125; 10, if $100; 11, if $90; 14, if $75; and so on. Under these conditions, what must the price tend to be, and what principles will regulate that price? The accompanying demand and supply schedule shows that the price could not be above $100; for, if it went above this figure, 4 buyers would withdraw, making demand deficient, and, in order to guard against this result, the sellers would bring price down to $100. On the other hand, price could not go down to $90; since, if it did one new buyer would come in, making demand excessive, a result which $100-buyers would have to guard against by bidding price up to at least $91. Actual price, then, must tend to be some price between $91 and $100, inclusive.

| Demand | Price | Supply |
|---|---|---|
| | dollars | |
| 1 | 200 | 10 |
| 2 | 175 | 10 |
| 4 | 150 | 10 |
| 6 | 125 | 10 |
| 10 | 100 | 10 |
| 11 | 90 | 10 |
| 14 | 75 | 10 |
| 16 | 60 | 10 |
| 20 | 50 | 10 |

The first and most obvious comment on this case is that our familiar *law of supply and demand is still operative.* A price must be reached at which demand and supply are equal. If demand and supply were not quite equal at one of the prices given in the schedule, the necessary equating would be effected in practice by compromise prices between those given. Equality of demand and supply would be reached at $95 or $94 or $97 or at some other figure between $90 and $100. Further, it is manifest that the law of supply and demand is regulating not merely market price but *normal* price also. The market price, under this law, would in successive hours or days or weeks probably run both above and below $100, perhaps mostly

above. But under the same law, as a final resultant, a normal price of $100 would be affirming itself.

We have noted that, in this case of fixed-supply goods, the law of supply and demand is still operative and is determining normal price.

It may be worth while to add that the law may here be affirmed in a somewhat special sense. Since supply is, by hypothesis, constant and so demand must do all the changing, and since supply is in the long run identical with stock, we are justified in restating the principle as follows: *In the case of fixed-supply goods, the normal price must tend to be that price or some one of that series of prices which will cause demand to become equal with the unchanging supply. Or, more briefly, the normal price must tend to be that one or at least some one of that series which will equate demand to stock.*

In seeking a deeper knowledge of the processes by which normal price is determined, the natural procedure is to note first the relations between the price which is necessary to equate supply and demand and the particular supply prices and the particular demand prices which are the immediately effective ones in the regulation of price. These, we remember, are the marginal demand price and the first extra-marginal supply price for the upper limit of price and the marginal supply price and the first extra-marginal demand price for the lower limit. Are all of these operative in the case of fixed-supply goods, and if not, which ones are? The answer is quickly given: *Only the demand price limits are operative.*

As we saw in our first analysis of the Utopia example, at least one reason why normal price could not be above $100 is that, unless price is as low as $100, the last increment of demand will not appear at all, and sellers, therefore, will be obliged to bid actual price down to $100 to insure disposal of the stock. That one of the two variables fixing the upper limit of price which comes from demand, the marginal demand price, is thus actually operative. But the other variable fixing this limit, the one which comes from supply, is *not* operative. Sellers are not compelled to bid price down in order to prevent the appearance of a new supply; for there is no new supply to appear —supply is constant. In other words, the first extra-marginal sup-

ply price has no share in fixing the upper limit of actual price. That limit is fixed by the marginal demand price only.[1]

Turning, now, to the lower limit of price of this same commodity, it is evident that actual price could not go down to $90 because this would make demand increase by one copy, thus compelling buyers to bid price up to some higher figure in order to exclude this increment of demand. But, on the other hand, buyers do not have to hold price up in order to keep in the marginal supply; for, by hypothesis, supply is constant and therefore will not fall with a declining price. In short, that one of the variables fixing the lower limit of price which comes from demand—the first extra-marginal demand price—is the only one actually operative. From this analysis, it follows that, *in the case of fixed-supply goods, the normal price must be one of the prices ranging from a limit fixed by the marginal demand price, and that only, down to a limit fixed by the first extra-marginal demand price, and that only.*

The above formula confines itself to defining the limits within which normal price must tend to fall. But, as already noted, actual demand schedules for most commodities are continuous,—show changes in the volume of demand for practically every change in price. In consequence, the marginal and the first extra-marginal demand prices will be in juxtaposition and therefore actual price cannot go below the marginal demand price at all without reaching the first extra-marginal demand price. In practice, then, it will usually be sufficient to define normal price by one of these limiting moments, the marginal demand price. Hence the following formula:

> **Principle.** *Generally speaking, the normal price of a fixed-supply commodity must tend to coincide with its marginal demand price.*

The formula just given makes the marginal demand price the decisive factor in determining the normal price of fixed-supply goods. But as was explained in Chapter XXIV, the marginal demand price must usually be an expression of the marginal significance to the marginal buyer, as estimated by himself, of the quantity of a com-

[1] The limit is the first price above.

modity he proposes to buy; and this, in turn, must be determined by his estimate of the marginal *utility* he expects to derive from that quantity of the commodity. Further, the marginal significance or utility to the marginal buyer is the *general* marginal significance or simply the marginal significance. And, finally, in any formula containing the phrase "marginal demand price," we can substitute the phrase "marginal significance" or the phrase "marginal utility." Hence the following formula:

**Principle**—The Marginal Significance or Utility Principle.

*Generally speaking, the normal price of a fixed-supply commodity must tend to be that price which expresses the marginal significance or utility of the existing stock of said commodity.*

### Illustrative Problems

1. During the current year, there came on the market from various sources twelve specimens of a certain rare object. If the ultimate demand schedule proves to be as follows: 1 wanted at $60; 2 more at $55; 4 more at $50; 5 more at $45; 6 more at $40; etc., what price will in the long run tend to be reached? Prove.

2. In a certain year the output of wheat proved to be 2,000 millions of bushels. The ultimate demand schedule for the year ensuing till the next harvest was as follows: 1,600 million bushels wanted if price were $1.30; 1,800 millions if price were $1.25; 2,000 millions if $1.20; 2,200 millions if $1.15; and so on.

(a) What price would tend to prevail for that year? Prove in detail.

(b) What would determine it?

(c) What price would tend to prevail if the demand moved up a step, making the schedule 1,800 millions at $1.30; 2,000 millions at $1.25; 2,200 at $1.20; 2,400 at $1.15; and so on?

(d) What price if demand moved up two steps, making the schedule: 2,000 millions at $1.30; 2,200 at $1.25; and so on?

(e) What price if demand moved down two steps, making the schedule: 1,200 millions wanted at $1.30; 1,400 millions at $1.25; 1,600 at $1.20; 1,800 at $1.15; 2,000 at $1.10; and so on?

3. "In 1348-49 the black death carried off from one-third to one-half of England's workingmen. In consequence wages greatly advanced."

(a) Explain the advance in wages on the basis of the Law of Supply and Demand given on page 286, constructing for the purpose imaginary demand and supply schedules.

(b) Explain the advance in wages on the basis of the Marginal Significance principle given above.

(c) Discuss this statement: "Wages rose because the demand for the laborers who were left had greatly increased."

## II

### Normal Price of Constant-Cost Goods

In sharp contrast with the class of goods just considered, fixed-supply goods, are the constant-cost goods with which we now deal. The former had no supply price, or perhaps better, their supply price was *indeterminate*. Constant-cost goods, on the other hand, have just *one* supply price. Within the limits of the demand likely to develop, an indefinitely large supply will be forthcoming at that one price, while none will be forthcoming at any lower price. As a hypothetical example of this class of goods, we will take the wooden chair used in the fifth problem on page 159. This chair is a constant-cost good at the single price of 30 cents, so long as demand is not less than 500,000 and not greater than 2,000,000. That is, a price as high as 30 cents is necessary to bring out any supply at all, since this is the cost of production; and this price will bring out a supply indefinitely large as compared with demand.

The law of normal price for this case is easily derived. As we found in Chapter XXIII, the limits of price variation may be fixed by two prices from the demand side, or by two prices from the supply side, or by some combination of these. But, in this particular case, the operation of supply prices in fixing these limits is so decisive that demand prices may be ignored altogether. *There is but one price which supply conditions will permit to exist; that one, therefore, must prevail.* This results from the fact that in this case, *the limits fixed by the marginal and first extra-marginal supply prices coincide.* Our chair will not be supplied at all, unless the price

is as high as 30 cents; and any additional chairs wanted will be forthcoming as long as this price is offered. The former condition insures that actual price cannot be *lower* than 30 cents; the latter insures that it cannot be *higher* than 30 cents. It is thus rigidly fixed at this one point. The normal price of such a commodity must tend to coincide with the single supply price without respect to demand prices.[2]

The principle just brought out, the exclusive dependence of constant-cost goods on the supply price, is so important that it seems best to give it the benefit of ample illustration. We take for this purpose our wooden chair. The accompanying table shows the single supply schedule for amounts between 500,000 and 2,000,000, and several hypothetical demand schedules. Strictly speaking, our supply schedule should show but one price. But, since producers who are ready to supply any amounts between 500,000 and 2,000,000 at 30 cents will of course be ready to furnish these amounts at any higher price, we can without inaccuracy set down these figures for supply at the higher prices of the demand schedules; and, since this procedure will contribute to convenience, it is adopted in the table.

Combining, now, supply schedule S with demand schedule A, it is plain that price must tend to be just 30 cents. Price could not be higher than this; since sellers, being ready to supply much more than the total amount demanded at 30 cents, will bid down to that figure in order to get as much of the market as possible. On the other hand, since there is no supply forthcoming at prices below 30 cents, buyers will bid price up to that figure to insure getting what they want. Exactly similar reasoning would show that the price must necessarily tend to be just 30 cents with demand schedule B or C or D or, in fact, with any one we could imagine which made demand at 30 cents more than 500,000 and less than 2,000,000.

But not only will price be 30 cents, the single supply price, it will rest at that point *uninfluenced by demand prices*.[3] The most

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[2] Of course this does not mean that actual price can be emancipated from all relation to demand prices. Actual price could never be higher than the marginal demand price. But this simply means that, if the marginal demand price were not as high as the single supply price, the commodity in question would not be produced at all, and hence the problem of its price determination would not arise at all.

[3] Remember, however, the qualification already noted.

clearly decisive proof of this assertion is to be found in the fact that the same price would be reached if our demand schedule were so altered as to put the demand prices which might influence the matter *quite outside of the price bound to prevail.* Thus, let us suppose the schedule D to be so altered that from 50 cents to 15 cents there is no change in the volume of demand. Now, under this schedule as under the others, normal price must tend to rest at 30 cents; buyers will hold it up to this point; sellers will hold it down to this point. But with a normal price of 30 cents, the marginal demand price for schedule E would have to be 50 cents, since that price is low enough to bring in the whole demand actually satisfied; while the first extra-marginal demand price would have to be 15 cents, since no addition to demand takes place till this price is reached. But neither of these prices influences a price set at 30 cents. A marginal demand price of 50 cents would permit actual price to rise to 50 cents; while a first extra-marginal demand price of 15 cents would permit actual price to fall as low as 20 cents. But, in fact, actual price cannot rise above 30 cents, nor fall below 30 cents. Its position, therefore, is uninfluenced by the demand prices.

| Supply | Price | Demand 000 | | | | |
|---|---|---|---|---|---|---|
| Schedule S 000 | Dollars | Schedule A | Schedule B | Schedule C | Schedule D | Schedule E |
| 500-2000 | 3 | 2 | 3 | 3 | 5 | 5 |
| 500-2000 | 2 | 10 | 12 | 15 | 20 | 20 |
| 500-2000 | 1 | 50 | 51 | 60 | 80 | 80 |
| 500-2000 | .75 | 300 | 500 | 810 | 1100 | 1100 |
| 500-2000 | .50 | 500 | 750 | 1020 | 1400 | 1400 |
| 500-2000 | .40 | 600 | 895 | 1200 | 1520 | 1400 |
| 500-2000 | .30 | 700 | 950 | 1540 | 1840 | 1400 |
| 0 | .25 | 1000 | 1210 | 2000 | 2560 | 1400 |
| 0 | .20 | 1500 | 1800 | 2560 | 2800 | 1400 |
| 0 | .15 | 2500 | 3000 | 3800 | 4563 | 2000 |

We are now in a position to observe the final results of our study of constant-cost goods. These goods, we have just shown, must tend to have a price coincident with their single supply price, uninfluenced by their demand prices. But that single supply price, as we learned in the chapter on supply schedules, *is the cost of pro-*

*duction* to the representative producer; and demand prices, as we learned in the chapter on demand schedules, are expressions of the marginal significance or utility of the commodity to marginal consumers. Making the substitution of terms, therefore, we may say that the price of a constant-cost commodity tends to coincide with its cost to representative producers, uninfluenced by the significance or utility of the commodity to consumers.[4]

The result of the preceding discussion has been to set up cost of production as the determinant of the normal price of constant-cost goods. However, a word of caution is here necessary. The power of cost to determine price is derived from its power to influence the forthcoming of supply. Its influence, therefore, is exercised through the future rather than the past. It is not because the existing product had a cost that price has to equal cost, but *because the future output will have a cost.* From this fact it results that unless there is call for future production, cost can have no influence on price. If, for example, a change in fashion makes the existing stock of a particular style of shoe in excess of any possible demand at a price as high as cost, there will obviously be no need for further production, and so cost will have no influence on the price. Such a commodity will, as seen in our classification of commodities, pass into the class of fixed-supply goods. Its price will then become purely a matter of demand prices and, therefore, of the forces lying behind those prices, namely, significance or utility. To insure our recognition of this point, our principle will explicitly state that the continued production of the commodity in question must be called for.

Another caution is suggested by the consideration on which the last was based,—that cost of production acts only through its relation to future product. Cost of production may change, rise or fall; and, after every change, it will be the *new* cost which must determine price. To anticipate this difficulty, some writers have argued that we ought to say "price must equal cost of *re*production." To this, however, the answer of Cairnes is perhaps sufficient: All scientific principles assume constancy of conditions; the cost which

[4] Remember the qualification.

is decisive at any period is the cost of that period, conditions supposed to be unchanged. But, if anyone prefers, there is no serious objection to saying cost of reproduction.

The principle brought out in this discussion may now be formulated as follows:

> **Principle.** *The normal price of constant-cost goods, the continued production of which is demanded, must approximately equal their cost to representative producers.*

## Illustrative Problems

1. From a cement factory promoter in 1901: "We can easily satisfy any fair-minded person that our proposition is a veritable gold mine. Cement can be put on the market by a well-equipped mill at a cost of about $1.75 a barrel, while it is selling for $4, thus giving a profit of over 100 per cent. With the supply of raw material practically unlimited, our mill will soon be turning out 600,000 barrels per year, and our annual profits will be nearly $1,500,000. You can't afford to stay out."

Supposing the facts to be as stated, what economic principle was overlooked in drawing conclusions?

2. "Labor once spent has no influence on the future value of any article."

(a) Show that this is true as applied to the wooden chair which was used in working out our principle.

(b) Does the above statement, admitting it to be true, invalidate our principle?

3. At a certain time the price of whiskey in this country was about fifty cents, the cost of producing it. The United States government thereupon levied on each gallon produced a tax of one dollar. What naturally happened to the price of whiskey? Why?

4. "Let us suppose that five or six concerns are supplying the building brick used in a certain district, and that by a new method of manufacture they manage to double their output for the former expenses of labor. What will happen as regards the price of brick? From our knowledge of what competition usually does, we are apt to say: the price of brick will fall 50 per cent. This may be the final result, but not necessarily so. . . . Manufacturers in normal times will increase their production of brick. . . . To take off the extra supply of brick they must

find a wider circle of demand. . . . It may, however, happen—not in the case of brick probably, but in large articles of limited consumption—that *there is no such circle of demand at lower levels;* then what will happen is that the manufacturers will cut down their output to the same quantity of brick as before, and maintain the former high price. . . . It is contrary to all experience to think that employers will voluntarily raise wages or pay higher interest—because costs have decreased. They only do so under compulsion of fear that their rivals will cut the feet from under them. Where competition is active it will often seem as though reduction of costs were almost immediately followed by fall in prices of products, but, in the last resort—and that is what concerns us in seeking for a universal law of value—*the new prices are determined by the lower and wider levels of want which are ready to take up increased supply of the majority of ordinary commodities.*"

The above quotation is taken from the writings of an able economist. It has been modified at a few points to eliminate ambiguities. I think, however, that it does not misrepresent his views. In any case, it brings out a way of looking at the matter which the student should be familiar with.

(a) State clearly what is the precise point which the author seems to be trying to make.

(b) Show that it is unsound.

5. A certain residence in Ann Arbor is taxed each year, let us say, $42, of which sum $12 is properly chargeable to the land while the remaining $30 is chargeable to the house. Under the operation of the two principles of normal price which we have now had, the $30 will really be paid by the tenant, being shifted from the landlord to him, while the $12 will not be shifted and so, as far as the future is concerned, will remain on the landlord. Explain how it is that things come out this way.

## III

## Normal Price of Increasing-Cost Goods

Fixed-supply goods, we have found, have their prices determined by *demand forces only.* Constant-cost goods, on the other hand, have their prices determined by *supply forces only.* But in the case of increasing-cost goods with which we now deal, *forces from both sides* participate. This grows out of the fact that the supply schedule is of the sort called typical in our first account of these schedules.

Since, by definition, the cost of these products increases as the output increases, their supply schedule will show a change in supply for every change in the supply price. But general demand schedules, as explained in Chapter XXIV, are practically always of the typical sort, showing change in the volume of demand with every change in price. Hence our present case is one wherein both schedules are of the regular type. In consequence, any price which does not equalize demand and supply sets up reactions tending to displace that price, on *both the demand side and the supply side;* and these reactions influence the determination of the point where price finally rests, whether they come from the side of demand or that of supply. *Normal price, then, for increasing-cost goods is determined by both demand and supply forces.*

Perhaps the best way to confirm this reasoning is to show by illustration (1) that every variation in either the demand schedule or the supply schedule would cause a change in price, and (2) that the determination of the new price would have been influenced, not by the changing element only, but also by the one which remained constant. The first point may be seen by a moment's study of the accompanying table, which gives three different schedules of the typical sort on each side. Whichever ones we combine at the outset (not including D''' or S''') if we keep the supply schedule constant and unite with it a different one of the demand schedules, a new price necessarily emerges. A precisely similar result is reached if any one of the demand schedules is kept constant and a different supply schedule combined with it.

The second point is not so easily seen, but is no less certain. When a new price is fixed by the use of a new demand (or supply) schedule, that price after all is not made what it is simply by this new demand (or supply) schedule—it is also influenced by the schedule which was kept constant. To illustrate, let us start with two combinations both of which give a price of 55 cents, namely, demand schedule D with supply schedule S, and the same demand schedule with supply schedule S''', a schedule which shows supply unchanging from 53 cents to 57. Let us now substitute demand schedule D' in the two combinations successively and note the different results. The first experiment, putting D' with S, causes price

| Demand, 000,000 oz. | | | | Price cents | Supply, 000,000 oz. | | | |
|---|---|---|---|---|---|---|---|---|
| Schedule | Schedule | Schedule | Schedule | | Schedule | Schedule | Schedule | Schedule |
| D‴ | D″ | D′ | D | | S | S′ | S″ | S‴ |
| 230 | 190 | 230 | 210 | 60 | 310 | 330 | 290 | 290 |
| 240 | 200 | 240 | 220 | 59 | 300 | 320 | 280 | 280 |
| 250 | 210 | 250 | 230 | 58 | 290 | 310 | 270 | 270 |
| 260 | 220 | 260 | 240 | 57 | 280 | 300 | 260 | 260 |
| 260 | 230 | 270 | 250 | 56 | 270 | 290 | 250 | 260 |
| 260 | 240 | 280 | 260 | 55 | 260 | 280 | 240 | 260 |
| 260 | 250 | 290 | 270 | 54 | 250 | 270 | 230 | 260 |
| 260 | 260 | 300 | 280 | 53 | 240 | 260 | 220 | 260 |
| 270 | 270 | 310 | 290 | 52 | 230 | 250 | 210 | 250 |
| 280 | 280 | 320 | 300 | 51 | 220 | 240 | 200 | 240 |
| 290 | 290 | 330 | 310 | 50 | 210 | 230 | 190 | 230 |

to advance 1 cent, from 55 to 56. The second experiment, putting D′ with S‴ makes price advance 2 cents, from 55 to 57. The obvious reason is that, in the latter case, unchanging supply left to demand alone the equalizing of demand and supply and so price had to advance two full steps; while, in the former case, increasing supply made possible the equalizing of demand and supply 1 cent earlier, and so stopped the rise of price at one step.

We have seen that the normal price of increasing-cost goods must tend to be one which is influenced by the forces of both demand and supply and so by all four of those moments which fix the limits of price variation, namely, the marginal and first extra-marginal demand prices and the marginal and first extra-marginal supply prices. But in Chapters XXIV and XXV we learned that the demand prices are expressions of the significance or utilities of the several amounts of the product in question, while the supply prices are the different marginal costs of production. Hence in the above statement we may substitute for the phrases "demand prices" and "supply prices" the words "significances" and "costs." In short, the prices of increasing-cost goods are determined by both significance, or utility, and cost. More precisely the price of an increasing-cost good must not go above that price which expresses its marginal significance nor up to one which equals its first extra-marginal cost, and must not go below its marginal cost nor down to a price which expresses its first extra-marginal significance or utility.

If we assume for the sake of convenience that both the demand and supply schedules are perfectly typical and regular, it follows that the two upper limits would fix the *same* price, as in the schedule on page 281, and the same would be true of the two lower. It would then leave our formula still adequate if we were to omit the limit fixed by extra-marginal significance or cost and say: "The price of an increasing cost product must be one which approximately expresses its marginal significance or utility and equals its marginal cost."

Before finally accepting this formula, however, it seems desirable to make some comments in the nature of cautions. First, in order to anticipate an objectionable interpretation which some have made, it is perhaps best to insert the word "normal" before marginal cost. The marginal cost is *the greatest* cost at which production is being carried on, and this might be taken to mean the cost to producers who are quite behind the times in methods and facilities and are perhaps losing money but have no other alternative than going on till they become bankrupt. But actual price is commonly lower than cost to such producers; hence the formula breaks down. The answer is that such persons are not true marginal producers. A marginal producer drops out if price falls below his figure, while the persons in question continue whatever the price. They are far *within* the margin, or, better, are wholly abnormal elements. Not their cost, but the *normal* marginal cost, determines price.

Another point calling for a moment's attention is the following: If either or both of the schedules considered are discontinuous, price will not necessarily coincide exactly with either marginal significance or marginal cost. But it will be in so far fixed by both of these that, on the one hand, it must not go above the marginal significance nor down to the first extra-marginal significance; while, on the other hand, it must not go below the marginal cost nor up to the first extra-marginal cost.

Finally, it is of course always possible to argue that, in making up a formula, either one of the determinants might be chosen and the other one omitted, on the ground that *either implies the other*. But if we affirm the relation of price to either factor, making no mention of the other, there is danger that we shall be understood to mean

that the one we do mention is alone responsible for the price, to the entire exclusion of the other. So, in the opinion of the writer, it is unsafe to carry the ellipsis further than we do in the formula now to be stated.

**Principle.** *The normal price of increasing cost goods, the continued production of which is demanded, tends to be a price which both expresses the marginal significance of the output and equals its normal marginal cost.*

### Illustrative Problems

1. Suppose that the production schedule of silver reads as follows: At a marginal cost of 55 cents, 170 million ounces can be furnished; at a marginal cost of 56 cents, 175 millions ounces; at 57 cents, 180 millions; at 58 cents, 185 millions; at 59 cents, 190 millions; at 60 cents, 195 millions; at 61 cents, 200 millions; at 62 cents, 205 millions; at 63 cents, 210 millions; etc. Suppose, secondly, that the demand schedule is as follows: 160 millions ounces wanted, if price is 65 cents; 165 millions, if price is 64 cents; 170 millions, at 63 cents; 175 millions, at 62 cents; 180 millions, at 61 cents; 185 millions, at 60 cents; 190 millions, at 59 cents; 195 millions, at 58 cents; 200 millions, at 57 cents; etc.

(a) Make out a table giving the ultimate demand and supply schedules.

(b) What must price tend to be? Prove.

(c) What will it tend to be if demand moves up two steps, becoming: 170 millions wanted if price is 65 cents; 175 millions if price is 64 cents; and so on. Prove.

(d) What determines price in these two cases?

2. "At the present time (1896) silver is being produced at a marginal cost of approximately 65 cents per ounce. But the price of silver is in the long run determined by its marginal cost. Hence it is ridiculous to expect that the adoption of free coinage by the United States will raise the price of silver, as measured in gold, to $1.29 per ounce, or any other figure above 65 cents."

Admitting that the normal price of silver must in the long run coincide with marginal cost, still the above conclusion is unsound. Explain.

3. Suppose the production schedule in Problem 1 to be changed so as to read as follows: At a marginal cost of 55 cents, 175 millions ounces

can be furnished; between 55 cents and 59 cents no change is possible; at a marginal cost of 59 cents, 500 millions ounces can be furnished; at 60 cents, 525 millions ounces; and so on.

(a) What would price tend to be when the demand schedule was the same in Problem 1 (a)? Prove.

(b) What would price tend to be if the demand schedule were moved up as in Problem 1 (c)? Prove.

(c) What would price tend to be if the demand schedule were moved up two more steps so as to begin: 180 millions ounces wanted at 65 cents? Prove.

(d) What is the point to be made?

4. The author of a recent textbook in Economics expresses himself on the relation of cost to price in this vein: In the case of reproducible goods, "cost of production seems of commanding importance." "In fact, however, marginal efficiency (utility) is the real determinant of price," "cost of production adjusts itself to this." "There is an abundance of silver below the surface that is not mined because it will not pay; if the marginal efficiency or value of silver should rise, these more expensive grades would at once be marketed and the new marginal cost of production would adjust itself to the price."

(a) Construct a sentence running parallel to the last one quoted, but exactly reversing the roles of marginal utility and marginal cost, whereby it would seem to be proved that marginal cost really determines price while marginal utility merely adjusts itself to price. The sentence should start out something like this: "Generally speaking, it would seem as if marginal utility chiefly regulated price. In fact, however, marginal cost is the real determinant; marginal utility adjusts itself to this. Below the present demand for silver there are numerous layers of demand which are now merely potential because the corresponding utilities are below the present market price; if, now, the marginal cost of producing silver should fall, and so the price should fall, these lower layers of demand, etc. . . ."

(b) Show that both the original quotation and our substitute are inadequate,—that the price reached in the former case is influenced by marginal cost, while that reached in the latter case is influenced by marginal utility.

# CHAPTER XXVII

## SPECIAL CASES OF NORMAL PRICE

The general principles governing normal price have been brought out in the preceding chapter. But there are some cases of a rather unusual character which call for special treatment. Some, on account of peculiar complications, are not provided for at all in the foregoing principles. Others could be fairly covered by a careful interpretation of those principles; but, because of certain peculiarities, further explanation is needed to guard against misunderstanding. In still other cases, there is reason for attempting a special statement, because, although the principles already laid down quite plainly apply to them, it is possible for various reasons to go deeper, to find some more ultimate statement of the process whereby price is determined.

### I

### Rare Products

A very interesting special case is that of produced goods which are *so limited in possible amount that they behave almost like non-producible goods.* We speak of them as *rare* products. Notable examples are the very rare metals, such as radium, iridium, even platinum. We should probably have to count in the same class various vegetable products, special brands of tea, tobacco, or wines.

As already indicated, the distinguishing mark of this class of goods is the fact that the total possible output is extremely restricted as compared with the demands at very high prices. In consequence, increases in output through increased expenditure, though they can be made, are practically negligible. Goods of this sort give us a production or supply schedule which looks something like a regular increasing-cost schedule. In fact, however, the extreme smallness of increase in output with rise in price differentiates these from the typical cases such as we had in silver. The accompanying schedule,

an imaginary one for a very rare brand of tea, may be taken as representative. Every considerable increase in output takes place while cost is still quite low, and after cost has passed $25 the additions are all in single pounds and even fractions of a pound. If this supply schedule be combined with the demand schedule marked D, a price of $250 per pound results, and this price is really deter-

| Demand 000 pounds | | | Price dollars | Supply 000 pounds | |
|---|---|---|---|---|---|
| D″ | D′ | D | | S | S′ |
| 1 | 6 | 3 | 500 | 11.683888 | 40 |
| 2 | 8 | 5 | 450 | 11.683885 | 25 |
| 3 | 10 | 6 | 400 | 11.68388 | 18 |
| 5 | 12 | 8 | 350 | 11.68387 | 15 |
| 6 | 13 | 10 | 300 | 11.68385 | 13 |
| 8 | 15 | 12 | 250 | 11.6838 | 12 |
| 10 | 18 | 13 | 200 | 11.6835 | 10 |
| 12 | 25 | 15 | 150 | 11.683 | 8 |
| 13 | 40 | 18 | 100 | 11.682 | 6 |
| 15 | 60 | 25 | 50 | 11.680 | 5 |
| 18 | 100 | 40 | 25 | 11.675 | 3 |
| 25 | 120 | 60 | 10 | 11.650 | 2 |
| 40 | 160 | 100 | 5. | 11.600 | 1 |
| 60 | 180 | 120 | 4. | 11.500 | |
| 100 | 200 | 160 | 3. | 11.350 | |
| 120 | 500 | 180 | 2.50 | 11.100 | |
| 160 | 700 | 200 | 2. | 10.800 | |
| 180 | 1,500 | 500 | 1.75 | 10.500 | |
| 200 | 3,000 | 700 | 1.50 | 9.900 | |
| 500 | 10,000 | 1,500 | 1.25 | 9. | |
| 700 | 15,000 | 3,000 | 1. | 7.7 | |
| 1,500 | 20,000 | 10,000 | .75 | 6. | |
| 3,000 | 30,000 | 15,000 | .50 | 4. | |

mined in just the same way it would be if the possible output for each year were absolutely fixed at 11,000 pounds,—by the marginal significance. The fact that the output can be increased beyond 11,000 pounds, and the further fact that in the end the price actually coincides with the marginal cost of production, have really nothing to do with fixing the price at $250. Marginal significance alone is effective.

This contention is most plainly established by noting the effect of raising or lowering the demand schedule and seeing how the results differ from what they would be if we had a typical case of

increasing-cost goods. Thus, when demand schedule D′, representing demand as having advanced two steps all along the line, is combined with the supply schedule, price also advances *two steps,* from $250 to $350. So demand schedule D″, which represents one resulting from a decline of two steps in demand, causes the price also to drop *two steps,* from $250 to $150. If now our supply schedule had been a typical one wherein supply appreciably increased as the marginal expenditure increased—represented in schedule S′, the result would have been quite different. Our original demand schedule D combined with this new supply schedule would have given us, as before, a price of $250. But the change to D′ would have caused an advance in price, not of two steps, but only of one, from $250 to $300. So, combining D″ with the new supply schedule would have caused a drop in price, not of two steps, but only one, from $250 to $200.

The reason is plain. In the latter case, the *substantial increase* in output, as price rose under schedule D′, brought supply and demand together at an earlier price; while the *substantial falling off* in output, as price fell under schedule D″, brought supply and demand to equality at the earlier point. With the original supply schedule, both of these conditions were lacking. The increase as price rose was negligible, the decrease as price fell was negligible. The new prices, therefore, were fixed without respect to supply or cost. We have here in effect a fixed-supply or fixed-output commodity, the price of which is determined by marginal significance alone.

## II

## Joint-Cost Products

In studying not a few producible goods, we strike a complication due to the fact that *several different commodities emerge from the same productive process.* Thus, the dairyman simultaneously and by productive efforts, a large share of which are inseparable, brings into existence milk, butter, cheese, beef, and hides. The refining of petroleum yields not only common illuminating oil, kerosene, but also vaseline, gasolene, and naphtha. Again, the coal tar resulting from the distillation of coal for the making of gas gives us a whole line

of by-products, including various drugs, perfumes, and a large number of dyes. Now, in cases like these it is impossible, save in very small measure, to isolate the share in the cost of production which is properly chargeable to each of the several products. This being true, we surely cannot apply to these goods, without qualification, the principle laid down for other producible goods.

The special theory needed here was set forth by Mill. It is that *the price of each of the individual products must be such as to equalize supply and demand for that product; while the money value of the whole group of products must equal their cost of production.* In consistency with the modern analysis which goes behind demand to significance or utility, we should change the first part of this formula to read "the price of each of the individual products must tend to be that price which expresses the marginal significance of the quantity of that particular product which is put upon the market." The second part of the formula can remain unchanged.

The argument in support of this principle is as follows: First, the price of each member of the group of products must be such as to express its marginal significance, because, under the conditions given, the quantity of each of the products is virtually fixed, and hence it comes under the laws of fixed-supply goods. This, of course, does not mean that the supply of each commodity is literally unchanging; but that its changes do not take place in response to conditions which affect that commodity itself only, but rather in response to conditions which affect all the commodities of the group. When, therefore, the price of any one of them is in process of determination, the supply of that one is virtually fixed; and hence the principle governing its price is the one which governs the price of fixed-supply goods. But the principle in question makes the price of these goods depend upon marginal significance; and so marginal significance governs the case now before us.

It is no less certain that the prices of all the members of the group must be such that the sum total of their money values will equal their joint cost of production. This result is bound to be brought about through processes already thoroughly familiar. If at any point the sum total of the group prices should rise above this total cost of the group products, capital will move into the industry, supply all along

the line would increase, marginal significance would fall, and so prices would fall. Conversely, if the total costs were not covered by the total values, capital would withdraw from the industry, the supply of the several commodities would fall off, their marginal significance would rise, and so prices would rise. Doubtless this readjustment would be much more complicated and hence much slower than in the case of isolated individual products, but in the long run it would inevitably come about.

**Principle.** *The price of each member of a group of joint-cost products tends to be that price which expresses the marginal significance or utility of the quantity of that particular product which is put upon the market, provided that the sum of the money values of all products of the group tends to equal their joint cost of production.*

### Illustrative Problems

1. Enumerate some products of a Michigan farm which might be thought of as by-products.

2. Discuss the question as to whether the transportation between Detroit and Jackson of products of quite different types, for example, coal and dry goods, truly gives rise to a case of joint-cost products.

3. "The recent fall in the price of cotton is largely due to the improved manufacture and (increased) uses of cotton-seed oil."—Marshall's Economics of Industry, page 225.

Explain why these facts should tend to cause a fall in the price of cotton.

## III

## Diminishing-Cost Goods

If the wooden chair, the output schedule of which was presented in Chapter XXVI, is taken in the earlier stages of this schedule, it belongs in the class of diminishing-cost goods,—the more output producers try to furnish, the smaller is the cost per unit. This case we sometimes treat as a third subdivision of variable-supply goods. The general principle for variable-supply goods that price tends

to equal cost, if properly interpreted, is really adequate here, and proper interpretation only requires us to remember that the cost of production meant in our principle is the cost which is representative *at the very time mentioned,* not at an earlier or a later date. Nevertheless, as this case is one of unusual practical importance, it seems to deserve special comment.

The theory is comparatively simple. So long as the demand for commodities of the type considered is still relatively small, persons producing them are obliged to employ expensive methods of production; hence cost and, so, price is high. Presently, demand shows a large increase, and in consequence producers are able to realize the various gains of large-scale production, with the result that cost and, so, price is greatly diminished. Accordingly, if we wish to look at the period which includes these changes *as a totality* and state the law which governs that period as a totality, we have to say that price tends to equal *the lowest* of the costs of production. The importance of this law is best seen in connection with the theory of investment. In the earlier stages of a new industry, while crude or experimental methods are being employed, price is so high that producers who intend to introduce improvements which will greatly reduce cost are wont to anticipate therefrom enormous profits, and perhaps attempt to attract investors by representations to this effect. But investors should remember that, just because it is going to be possible to reduce cost of production, the price itself is bound to fall, and the great profits described by promoters will, in all likelihood, fail to be realized.

The principle may be succinctly stated as follows:

> **Principle.** *The price of diminishing-cost goods tends to equal their cost to producers working on the largest scale justified by the existing conditions of demand,—monopoly being excluded.*

## IV

### Fixed-Supply Income-Bearers

Another special case is furnished by the fixed-supply income-bearer, for example, a piece of land rented for business purposes.

First, with regard to income-bearers in general, we remark that, between their prices and their incomes there must tend to prevail at all times *a fixed ratio* approximately equal to the current rate of interest. When the rate of interest on money loans is approximately 5 per cent then, between the price of an automobile, let us say, which is to be used for purposes of hire and the net money income derived from that automobile,—due allowance having been made for repairs, replacement, labor services, and so on,—the ratio is bound to be approximately 100 to 5 or 20 to 1.

Now, the establishment of this ratio may conceivably be brought about in either of two ways: (1) the price of the automobile having been fixed, the income may move up and down till it settles at a figure just 1/20 of the price of the automobile, or (2) the income having been fixed, the price of the automobile may move up and down till it settles at a figure just 20 times as great as the income. Which will it be? This depends surely on which of the two things, the income or the price of the auto, is free to move, and so able to put itself in the required relation to the other. With a commodity like the automobile, the one which must do this is surely the net income. For the automobile is a producible good, and, as we have already learned, prices of producible goods must approximate their costs of production. The price of the automobile, therefore, is not free to move. The income, however, moves with perfect freedom. If the net incomes derived from renting automobiles are too large considering the price of machines, then competition will increase, and in consequence rentals and incomes will decline. If incomes are too small, competition will lessen, whereupon rentals and incomes will increase. Accordingly, we may say of a producible income-bearer, that its price is first fixed and *to* this price the net income is adjusted.[1]

Passing, now, to non-producible income-bearers such as land, we find ourselves facing a very different problem. No element of cost

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[1] The student must remember, however, that the price of constant-cost goods is *not always* governed by cost. A necessary condition was expressed in the phrase, "the continued production of which is demanded," which appears in the formula on page 340. Producible income-bearers at times pass into the status of non-producible ones.

is here in operation. Utility or significance only can affect price; and the particular significance which affects it is obviously that given off by the land for a certain definite time. In short, the first thing to be fixed is, not the price of the land as a whole, but the price of a year's use of the land, its income; which income, having been fixed, determines in some way the price of the land itself.

Here again, as with producible income-bearers, the relation between the price of any income-bearer and its income is fixed in advance [2] by the existing ratio between capital in general and the income therefrom. When 5 per cent is the prevailing rate of interest, we can be pretty sure that the net yearly income of a piece of ground which commands a price of $1,000 is about $50.

In this respect, then, the piece of ground and the automobile are alike. But, in the matter of the *causation,* as we said, the cases are entirely different. The income of the machine adjusts itself to its price or cost; the price of the land adjusts itself to its income. We cannot say: The land is worth $1,000, hence its net income must be $50. Rather, we must say: The net income of the land is $50, hence its value must be about $1,000. To use another illustration, suppose a certain building site regularly yields a net income of $100, and that the current rate of interest on long-time loans is about 5 per cent. Then, the price of the site will tend to be as many dollars as .05 is contained in 100, or $2,000. The usual procedure, when 5 per cent is the rate, is to multiply the income by 20, which gives the same result as dividing it by .05. If, now, we put into formal shape the point here elaborated, we have the following:

**Principle.** *The price of an income-bearing property not capable of duplication tends to equal the sum of money*

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[2] This is not to say that the income-bearer in question has no weight in determining the ratio between capital in general and the income therefrom. Doubtless every transaction involving an exchange of present wealth for the right to a series of future incomes helps somewhat in fixing the rates at which all such exchanges take place. But as we have already seen, the price-making forces come to a head, so to speak, in a particular class of transactions, —those which are *marginal,* those in which marginal significance or marginal cost or both are determined. Accordingly, we can safely treat almost any particular transaction of the kind here engaging us, as one to which is being applied a ratio of exchange already determined elsewhere.

*which, lent at the current rate of interest, would yield a yearly income equal to the net yearly income of the said property.*

## Illustrative Problems

1. If a certain mining stock pretty generally yields a net income each year of $54 per share, what would its price tend to be, supposing that the usual rate of return expected in such lines of industry is about 7 per cent? Prove.

2. If the dividend of the above stock fell to $37, what would you expect the price of the stock to become?

3. Suppose you are considering the purchase of a $100 government bond, untaxed and paying 2 per cent interest. What price could you reasonably pay, if the rate commonly obtained on securities of this grade was 1.9 per cent? Prove.

4. Here is a piece of farm land which regularly yields a net income of $1,700. What would its price tend to be when the rate of interest in such lines was about 5.5 per cent?

5. Here is a site in a large city which yields a ground rent of $51,000 a year. Suppose that the Henry George ideas came to prevail in said city, so that the tax on the site named is fixed at 93 per cent of its rent.

(a) What would the price of the site tend to be when the rate of interest was about 5 per cent?

(b) What would it be if the rate of taxation were raised to 100 per cent, the rate of interest remaining 5 per cent?

6. Supposing that there were no interfering causes, what would you expect the price of a government bond bearing 2 per cent interest to do in times when the rate of interest has been exceptionally high for many months?

7. A certain building site regularly yields a net income of $300 a year. This fact would cause it to have what market value when the rate of interest was 8 per cent? 6 per cent? 5 per cent?

8. A certain automobile which is hired out, regularly yields its owner a clear income over all expenses of about $300 per year. With interest at 6 per cent, this fact would cause the car to have what market value? Is this a reasonable problem?

9. An automobile costs $1,200 and lasts only three years. With interest at 6 per cent and with 6 per cent added for the trouble and risk of running an automobile livery, what must an automobile earn during a year to make the business pay?

10. A certain building site is worth $22,000. With interest at 6 per cent what surplus over other expenses must any business located on the given site pay in order to make the use of the site for that purpose profitable? Interpret this problem so as to make it a legitimate one. Interpret it so as to make it an illegitimate one.

## V

## Price Under Monopoly

As we have emphasized repeatedly, our discussions of price determination assume perfect freedom of competition. The consistent distribution of topics would therefore seem to require that the discussion of monopoly should appear separate from, and supplementary to, the treatment of price in general. We shall not, however, be able to undertake an adequate treatment of the topic in any connection, so that it seems best to touch upon some of its most significant features here. Moreover, this procedure is in a sense justified by the fact that price-determination under monopoly is not a process entirely different from those already described, but merely a variant from them. Monopoly, as it were, injects into the situation a new condition under which the principles already noted as operative work out the result.

The first point to be made is that, in respect to its more immediate determination of price, we have under monopoly merely a special case of fixed-supply goods. The supply of the monopolized good is a fixed one; but this fixedness is not of natural origin, is not due to any absolute limit nor to the limit of our capacity to produce. Rather, the monopolist consciously, arbitrarily, limits the amount produced, or, at any rate, the amount put on the market. It follows that, immediately speaking, the law governing monopoly price is the same as that given for fixed-supply goods. The normal price of goods sold under the condition of monopoly must be one which expresses the marginal significance or utility of the output. The only

qualification needed is one which recognizes the artificial nature of the limit set. We might then restate the formula as follows: *The normal price of monopoly goods tends to be one which expresses the marginal significance of the supply as fixed* by the free choice of the monopolist.

The second point to be noted gives us a more fundamental governing principle,—a principle which tries to define the *normal price* of monopolized goods, the price which, in view of all the circumstances, including "the free choice of the monopolist," tends to be established. The use of the word "normal" here may sound strange; for it is probable that most people think of monopoly and the monopolist's free choice as doing away with all normality of price,—as fixing price in a purely arbitrary way. This, however, is going much too far. Monopoly prices, though less submissive to natural laws than competitive prices, are not, after all, entirely free from such laws. The monopolist is coerced by conditions in fixing his prices, not according to his own caprice, but in conformity with certain broad principles over which he has no control.

In the first place, if a monopolist puts his price too high, he will be disappointed in finding his gains smaller than they would be if he had set his price lower. Thus, suppose that petroleum is a monopolized product, and that a section of its demand schedule is as follows: 1,900 million gallons wanted if price is 9 cents; 2,500 million if price is 8 cents; 3,000 million, if 7 cents; 4,000 million, if 6 cents. Suppose, further, that the total cost per gallon is 4 cents, so that there is a clear profit of 5 cents per gallon if the selling price is 9 cents; of 4 cents per gallon, if price is 8 cents; and so on. If, under these circumstances, the monopolist fixes the price at 9 cents, he will clear $95,000,000, whereas at 8 cents he would have cleared $100,000,000. What he gains through larger profit on each unit of product he will more than lose by diminishing the total number of units sold.

On the other hand, it would be foolish for the monopolist to go to the opposite extreme in carrying out a policy of lowering price in order to increase demand. Thus, if he puts the price down to 7 cents, he will indeed cause demand to increase from 1,900 millions to 3,000 millions; but the lowering of profit on each unit will more

than offset this gain in amount sold. His net profit will drop to $90,000,000. In short, the self-interest of the monopolist will dictate that he fix on the price which insures that the product of the net profit per unit output into total output is the highest possible; and this gives us the general principle determining normal price under conditions of strict monopoly.

**Principle.** *Broadly speaking, the normal price of any monopolized commodity tends to be that price which will secure the largest net return to the monopolist.*

A cursory examination of the preceding analysis shows plainly that the cause which hindered the monopolist from pushing price upward indefinitely was the fact that as price rose demand fell off,—in other words, demand was elastic, varying inversely as price. If demand had diminished more rapidly with increase in price, the price actually established would have been still nearer cost of production. If demand had changed less rapidly with increase in price, price would have been put still farther above cost of production. Hence the following:

**Corollary.** *The tendency of monopoly price to rise above the competitive normal varies inversely as the elasticity of the demand for the monopolized commodity.*

It obviously follows from this corollary that every cause which increases the elasticity of the demand for a given commodity diminishes the tendency of price in said case to separate from the competitive normal. Thus, the appearance on the market of a commodity which can be used as a *substitute* for some monopolized one diminishes our dependence on the latter and so makes its demand schedule more elastic.

The preceding discussion has brought out the general principle governing normal price under monopoly. But it is possible to be a little more specific regarding one particular type of monopoly which has much prominence in our day. This is known as the *capitalistic* monopoly,—one which owes its origin to *the control by the monopolist of an exceptional volume of capital.* Such a condition enables

a man or group of men to attain the position of monopolist, to gain and maintain exclusive control of output, largely because it enables them *to produce more cheaply than rivals and hence drive them out of business.* But it is plain that, to succeed, monopolies of this sort *must keep prices fairly low,*—somewhere in the neighborhood of *cost to outsiders;* since otherwise competitors will be continually starting up, and will have to be bought out at considerable cost or driven out by destructive commercial wars. Formulating this point, we have the following:

> **Principle.** *The normal price of goods produced by capitalistic monopolists tends to approximate a figure not much above cost of production to outsiders.*

### Illustrative Problems

1. Suppose the demand schedule for Milton's autographs to be as follows: 1 wanted if the price is $200; 2 if it is $175; 4 if $150; 5 if $140; 8 if $125; 9 if $115; 12 if $100; 13 if $90; 15 if $75; 20 if $50; and so on.

(a) If there came on the market 9 autographs, what price would they tend to have under free competition?

(b) What price if all were owned by one man?

(c) Answer the same questions, supposing the number of autographs to be 15.

(d) Answer the same questions, supposing the number to be 20.

2. When the United States Steel Company was fully organized, many independent producers desired the Trust to join with them in raising the prices of steel products. The authorities of the Trust, however, refused, thinking it expedient to maintain the old level. What do you suppose was the reason?

### Miscellaneous Problems in Price

1. There come on the market eleven specimens of a certain rare object to be disposed of at the best price attainable. If the demand is as follows: 1 wanted at $65; 2 more at $60; 4 more at $50; 5 more at $45; 6 more at $40; etc., what price will tend to be reached? Prove.

2. In the last problem, suppose a tax of $5 to be levied on each specimen sold.

(a) What effect on price would be produced?
(b) Who would bear the tax in the end?

3. A friend of mine owns in a Chicago suburb a house and lot which used to rent for $300 a year. Last year real estate in his neighborhood had a boom, with the result that his property increased in value $3,000. In consequence he raised the rent to $480. What is the matter with the economic doctrine involved?

4. "If the state should inaugurate the policy of levying on the livery business a 10-per-cent income tax, the value of all plants devoted to this business would necessarily fall off 10 per cent." Criticize.

5. "Every owner of a railroad, of a patent, of a book, or of a (monopoly) property of any kind, finds that he makes more money by putting prices down to figures that are reasonable, that is, to figures which correspond to the values to the buyers of the things sold, than by keeping them up beyond those figures."

(a) Show that the words "which correspond to the values to the buyers of the things sold," are useless as a definition of "reasonable" prices. (Try to think of some object which has a price greater than that one which would express the value of the object to buyers.)

(b) In the case of producible goods, what price is commonly considered a reasonable one?

(c) When "reasonable" is understood this way, is it probable that the first half of Stickney's statement is true?

(d) Point out some cases of monopoly of which the statement can be affirmed with a fair degree of accuracy.

6. "Analogous arguments . . . might be made with regard to municipal railways, lighting companies, and water companies. These are all, for one cause or another, of a monopolistic character. The public enjoys no guarantee of fair treatment on account of any competition that can affect them."—Adams' Finance, page 264.

What is the doctrine with respect to competitive industries which is implied in the last sentence of the quotation?

7. "When the demand for wheat increases so as to exceed the capacity of the best land, the price of wheat rises so as to leave an excess or surplus over cost of production, and this surplus is driven into the hands of the landowner as rent by the natural competition of tenants. But, now, the high price of wheat leads to the cultivation of inferior

soils, which increases the supply of wheat so as to satisfy the demand, and *thus brings the price of wheat back to its old place.*"

Criticize the part in italics.

8. A certain man improves the opportunity offered by a growing city of 40,000 inhabitants to develop a messenger service business, from which at the end of three years he finds himself getting a net return, after allowing himself wages for management, of $700. The capital invested, which includes a bank balance of $200 which he commonly maintains, is only $500; but he has to provide for a pay-roll of about $200 a month or $2,400 a year. He now tries to sell out the business, asking for it $8,750. Assuming that the good will of the business is worth $500, and that 8 per cent is a reasonable rate of interest and profit, is the price proposed a reasonable one? Does the size of the pay-roll make any difference? Explain.

# CHAPTER XXVIII

## THE PRICES OF PRIMARY FACTORS AND DISUTILITY

**Final Price Determination.**—In introducing the study of market price, we explained that our complete treatment of the principles and processes of price determination would fall into three parts. The first two parts, one dealing with the more immediate processes of market price determination, and the second concerned with a set of the deeper forces involved in the determination of normal price, have been completed. These two studies have treated of the nature and operation of those processes with which the business man in general is most immediately concerned, and a knowledge of which is usually sufficient for his immediate purposes. There is a third set of forces, however, lying deeper than any yet treated, which it is now our task to study. We must now try to get beneath the surface processes already considered, to processes and forces which are, in a logical sense, ultimate; to go beyond conclusions which are often merely provisional, to those which are in some sense definitive; to leave points of view which are partial, for one which includes the field as a whole. In a word, our task now is to attempt a consideration of those fundamental forces and processes which govern the field of price as a totality.

**Inadequacy of Our Previous Treatment.**—The essential deficiency in our previous treatment of the price problem is to be found in the fact that, in all those cases in which cost of production has been represented as playing a part in price determination, *we have assumed that nothing need be said about the determination of that cost itself.* In other words, we have assumed that costs are data given in advance, determinate from the beginning. As we have pictured the matter, the entrepreneur, starting out to produce some

commodity, finds that he must pay so much for raw materials, so much for tools and machinery, so much for labor, so much for the use of capital, and so on. In consequence of these outlays, and in consideration of his own sacrifices, he fixes upon a price which conditions the forthcoming of his supply, the *supply price* of a given quantity of the commodity in question. Since it is a supply price, it is bound to influence actual price, is bound, at any rate, to furnish a point below which actual price cannot go if this increment of the supply is to be had.

But, now, what are the outlays which the entrepreneur has to make? Plainly, they are nothing more than the sum of money values of the factors he puts into the product, such value in each case being equal to the price of the factor involved, multiplied by the number of units employed. That is, costs, in so far as they consist of outlays, are themselves nothing but aggregates of prices, the prices of the factors or cost-goods used up in the process of production. This applies not only to the factors and cost-goods which the entrepreneur buys on the market, but also, in large measure,[1] to those which he himself contributes. If he supplies labor services, he cannot hope to get in return higher wages than the market rate for similar types of labor; nor can he get a higher rate of interest for the capital he himself puts into the business than the rate prevailing on the market.

It follows from what has just been said that in treating costs as data given in advance, as independent of the problem of price determination, we have ignored quite evident facts. *Costs are not fixed in advance. They are not fixed outside of the price-determinating process.* Being themselves dependent on the prices of cost-goods, the explanation of the process whereby they are determined forms an integral part of the total problem of price determination. In so far then as we have built on costs, as if these constituted a foundation below which it was unnecessary to go, we have left our task incomplete. Such a procedure was doubtless legitimate from the standpoint of what we called normal price, since it was reason-

[1] The profit on capital received by the entrepreneur furnishes a special case.

able to assume that, from the standpoint of the individual entrepreneur, for periods sufficiently short to be of interest to him, the prices of cost goods have in normal times a degree of fixity sufficient to warrant his acting as if they did not change. Nevertheless, from the point of view of the entire problem of price determination, there is a gap in our explanation. We have not explained the process by which the prices of cost-goods are determined, although it is now evident that these prices play a very important role in the process of price determination.

**Produced Factors Partly Covered.**—This account of the insufficiency of our previous treatment of price determination, however, needs some qualification, and comment upon this qualification will aid in further defining our present problem. A large number of the factors used by the entrepreneur in production are themselves products. This being true, an account of the principles under which the prices of products in general are determined, must also explain, in part at least, the processes whereby the prices of those factors of production, which are themselves produced, are determined. In fact, the great majority of cases to which our previous account of normal price is applicable, are not final products, that is, such as are destined for the direct satisfying of wants, but they are factors used in making these final products. It follows, therefore, that in treating immediate price determination and normal price, we have covered to some extent this type of factor or cost-goods as well as final products.

At this point, however, we must again guard against overstatement. If, in our theory of the prices of products, those prices had been made dependent on cost of production solely, there would naturally have been no difference in the case of goods intended for final consumption and goods employed in further production. In fact, however, prices of goods for final consumption were represented as influenced not only by cost but also by their importance or significance to consumers. But this significance to consumers as a determining element in price, cannot be directly applied to goods which are used only in production. A footnote on page 303 called attention to this gap in our explanation. While affirming at that

point the almost certain influence of the significance of final or consumers' products on the prices of producers' goods used in their production, we then reserved further comment on this matter; and now, while studying the problem of final price determination, we are still facing the task of explaining the connection between the significance of the final products to the consumer and the prices of intermediate products entering into them.

**Primary Factors.**—We have seen that our study of price determination needs to be supplemented in order to provide a fuller explanation of the prices of those products which serve as factors in further production. The case of factors which are not produced, factors behind which it is not possible to go in the analysis of the productive process, *primary* factors,—these, still more notably, present to us a supplementary problem, a problem which has to be taken up in any explanation of the final processes of price determination. In attempting the solution of this general problem of the prices of factors or cost-goods, we shall confine our attention to the second case, that is, the case of primary factors, on the ground that, in so far as the case of produced factors has not already been provided for under normal price, the conclusions reached with respect to primary factors will be applicable without material change to produced factors. Accordingly we will now enter upon the task of answering the question: *How are the prices of primary factors determined?*

**Different Solutions of Problem.**—In economic texts, the problem we have thus set ourselves has seldom been clearly isolated, being usually confused with that presented by the more superficial processes of price-determination which have been studied in previous chapters. Nevertheless, one may distinguish at least three types of doctrine concerning this problem, as being implicit in price discussion. One group of writers teach that the value or price of the primary factors is determined solely by their marginal *utility:* the productive capacities and resources of man are progressively distributed over the whole field of production, from the most important products downward till they are all used, and their utility in the marginal use

fixes their value. A second group find the sole determinant in the *cost,*—the *disutility* cost—of supplying directly the human elements and making available the elements coming from nature, outside of man. Psychic cost is the original cost of everything, and determines what we must pay to secure the forthcoming of supply. A third group recognize the presence of *both utility and cost* determinants in the process, advocating what is often called an *equilibrium theory.*

**The Doctrine of This Text.**—The doctrine maintained in this text is a form of the equilibrium theory. It gives most weight to significance or utility, but it insists on recognizing the influence of disutility cost in the case of those primary factors which can be supplied only by processes which involve that element. It may be formulated for the sake of definiteness in the following statement:

**Principle**—Significance-Disutility Principle.

*The price of any primary factor tends to be that price which expresses the effective significance or value of that factor over the whole field of production, and which also expresses a disutility, not less than the marginal one and not as great as the first extra-marginal one, involved in supplying the quantity of said factor which is actually supplied, in case such a disutility exists.*

In maintaining this proposition, we will begin with the second or disutility part as involving fewer difficulties in analysis and presentation. This topic will occupy the remainder of the present chapter.

**Primary Factors and Disutility.**—It is a fact too evident to need argument that the supplying of those primary factors which are of human origin *may,* at any rate, involve a disutility or "pain-cost." Working or saving or taking responsibility can be carried so far as to be distasteful. Further, it cannot be doubted that at the present time, in societies which have attained to any high economic development, the supplying of these services has, with many of the persons concerned, gone so far that disutility is actually felt. Much or

most of the labor furnished carries with it a psychic sacrifice, and the same is true of some part of the saving and responsibility-taking. Still again, it is a familiar fact that the disutility or pain-cost of supplying these human primary factors increases with the amount supplied and diminishes as that amount diminishes. That is, disutility varies directly with the quantity supplied.

**Human Factors Have Supply Prices.**—Again, it cannot be doubted that the amount of supply is influenced by the disutility involved. Some persons, anyhow, supply less than they would if the disutility of doing this were diminished. Most of us do not work as many hours per week, or month, or year, as we would if there were no disutility attaching to our efforts; and the same surely is applicable to saving and responsibility-taking. It follows that any primary factor of human origin may be expected to have a supply price for each different quantity of such factor supplied, that is, a price on which is conditioned the forthcoming of that particular quantity, and, therefore, may be expected to have a supply schedule closely analogous to the perfectly elastic supply schedule which appears on page 270. If, at any time, an increase in the amount is demanded, a higher price will be necessary to bring out that increase, and, conversely, a higher price will bring out that increase.[2]

**Supply Prices Influence Actual Price.**—But, admitted that primary factors the supplying of which involves a disutility have a supply schedule of the typical sort, it necessarily follows that such a factor would tend to have its price fixed by the same limiting prices from the supply side which are effective in the case of commodities generally. That is, the actual price of such a primary factor could not go below the marginal supply price nor up to the first extra-marginal supply price. Buyers could not let price fall below the marginal supply price; since, in that case, they would lose the mar-

[2] Interesting exceptions to this principle have been noted, particularly this one: that the higher price of labor at times brings out, not a larger, but a smaller, supply. The men furnishing this factor prefer to increase their leisure rather than their income. But it would seem that this sort of thing must be looked upon as an irregularity only, not as materially affecting the whole course of things.

ginal increment of supply. On the other hand, included sellers could not let actual price go up to the first extra-marginal supply price; since, in that case, they would let in an excess of supply and so would run the risk of failing to dispose of some portion of their offering.

**Disutility Principle Established.**—The foregoing would seem to establish beyond question the second part of our principle with respect to the prices of primary factors, the part, namely, which affirms that the price of any primary factor tends to be a price which expresses a disutility not less than the marginal one and not as great as the first extra-marginal one involved in supplying the quantity of said factor which is actually supplied, in case such a disutility exists.

# CHAPTER XXIX

## THE PRICES OF PRIMARY FACTORS AND SIGNIFICANCE

Whether or not the significance of factors in production has any considerable part in fixing their value or price is still a matter of controversy among economists. The wide-spread acceptance of the so-called marginal productivity doctrine, which characterized economic writing perhaps twenty years ago, has been followed by some reaction. Indeed, not a few of the younger economists speak with some contempt of this whole point of view. Nevertheless, it is doubtful if anyone would have the hardihood to deny the existence of some connection between the significance of factors and their prices. For practically everyone assents without hesitation to the general proposition that, as far as buyers are concerned, there is no reason why factors should have any price at all except the fact that the products which result from the use of those factors have significance or value. Probably, in this case as in so many others, the real difference between the advocates and opponents of the doctrine here maintained has respect to the *degree* to which the presumable connection between the prices of factors and their importance in products is realized. At one extreme will be found those who seem to speak as if there were almost exact correspondence between the significance of any factor in production and the price which it commands on the open market; while at the other extreme appear a group of thinkers who seem to consider the correspondence between importance and price so slight as to be almost negligible. In the opinion of the present writer, neither extreme is defensible. Significance influences very greatly the prices of primary factors; but precise correspondence between the two is surely not realized.

Our defense of the contention that significance plays a large part in determining the prices of primary factors will follow two lines:

First, we shall try to show that there are conditions under which *there is some clue to the significance of a specific factor in the particular productive processes in which it is employed,* in which case the reciprocal competition of producers tends to give such factor a price expressing its effective significance over the whole field. Secondly, we shall try to show that, even under conditions where no such clue is to be had, *where there is no way of ascertaining the significance of any factor in the particular productive processes in which it is employed,* nevertheless the spontaneous working of the price-making forces tends to give each factor a price expressing the effective significance of that factor. In this chapter, we shall confine ourselves to the former of these two lines of argument.

## I

### Knowledge of Significance in Particular Operations when a Factor is Acting Alone

In the first place, there is an appreciable number of cases in which *only one* of the factors involved is an economic factor. For example, let us suppose that the productive process involved is piling into proper shape a cord of wood just delivered,—a process requiring only a very simple form of labor. In such a case, manifestly, the buyer of the single factor required could, without difficulty, ascertain quite precisely *the product* of that factor—the physical result which it accomplished in the particular productive process; since that product is simply the changed condition of the wood—the condition of being piled. Again, it is plain that the buyer of the factor could easily ascertain *the significance* of that factor in this particular productive process; for, obviously, that significance is just the same as the significance of the product itself—the changed condition of the wood.

Many examples analogous to this are supplied by laborers engaged in furnishing various sorts of personal services, including services to the household. These laborers may properly be regarded as acting alone, furnishing one factor which is operating, not jointly with other factors, but by itself. It is true that in such cases other factors are usually involved, but they may be disregarded because

the quantity of these other factors used is so small, in comparison with the quantity of labor employed, that their influence is negligible.

**Free Land Available.**—A much more important example of a single factor acting alone is found in new countries where there is an abundance of free land available to which labor can betake itself and make a living. Under these conditions, there is substantially but one factor, that is, labor, the other principal factor, land, being non-economic. It is true that, in cases like this, some little capital is needed, but the amount is so small that it may be regarded as negligible. Whatever the laborer produces, then, is recognized as his product in a specific and special sense.

**Numerous Cases Not Needed.**—It may be objected to giving the cases just commented upon much weight in our present problem that, at the most, cases of the sort form but a small per cent of the total, so small, indeed, that one cannot help wondering if they have any influence in the matter. To this objection, the easy answer is that, in nearly all cases of price determination, it is small quantities of supply which are decisive, namely, the marginal and first extra-marginal increments. These, to be sure, must be sufficiently large to affect appreciably the total supply, else sellers would not trouble themselves to bid price down in order to include the marginal increment of demand, and buyers would not trouble themselves to bid price up in order to exclude the first extra-marginal increment of demand. But a very small per cent of the total is sufficient for this.

Accordingly, a correct decision in respect to the question whether or not the cases of factors which act alone have any material influence on the prices of those factors, turns on whether or not the cases where the specific economic product of a factor can be isolated occupy the crucial positions indicated: Do they lie at the margin? There is certainly a possibility that they do occupy this position. Historians have nearly always agreed that, in the case of colonial America, the possibility, open to laborers, of going over the mountains into the unappropriated land constituted a first extra-marginal demand for labor which compelled the employer in the settled districts to bid wages up to a higher figure than they would otherwise

have reached. Even in a highly developed and static society, it seems not unlikely that the types of casual labor, which largely act in isolation, play a considerable part in that they are exceptionally mobile, exceptionally determined to have the best price the market will justify. At any rate, this much is certain, that in so far as the type of labor which is substantially acting alone does in reality occupy the crucial place at the margin, the price of that factor must tend to settle at a point not above the marginal significance of such labor, nor as low as the first extra-marginal.

## II

### Knowledge of Significance in Particular Operations when Several Factors are Cooperating

**Allocation or Imputation of Economic Product.**—We have commented on those cases where the particular significance of a factor can be ascertained because that factor, economically speaking, is acting independently,—all other factors are either non-economic or negligible in amount. But no one would contend that cases of this sort are predominant. Almost always many different factors are acting jointly. It follows, therefore, that, if we are to get much help from cases wherein the significance of the factor *in particular processes* can be ascertained, we must find *some method of isolating the significance of an economic factor even when it is operating jointly with other economic factors.* But this, in turn, requires that we should discover some process whereby we can *isolate a specific portion of the product* of the particular operation in which our factor appears, as being a portion which can legitimately be imputed or credited to that factor. The process by which such isolating of portions of the common product may be accomplished, if accomplished at all, is frequently designated "imputation." To distinguish it from other analogous processes to which we may find it convenient to apply the term, we shall call the case before us "product imputation" or "imputation of economic product."

**Meaning of Economic Product.**—Before commenting on the possible solution of the problem of product imputation, we must

realize quite fully in just what sense the word "product" is used in this connection. First, we surely must not think of ourselves as trying to discover some method of ascertaining the *literal* product of each factor in a joint process. The very notion of accomplishing such a result is absurd. Literally speaking, the whole product is produced by all the factors acting together. All we can hope to do, all we need to do, is to isolate the *economic* product of the factor in question. By economic product we mean the portion of the product which we can properly *treat as if it were* the product of the one factor under consideration. In other words, if in our economic conduct we *behave as if* a certain portion of the product were literally produced by the given factor alone, and *find that, in doing this, we have done just the right thing, economically speaking,* then that portion of the product which we treated as if it were the product of the factor in question alone, *actually is the economic product of that factor.*

This case is most easily illustrated from the product rent of a piece of land used for farming. Let us start with the idea that land is of many grades in respect to efficiency; and that there is such an abundance of the land of the lowest grade which it pays to cultivate that much of it is unused when we have put under cultivation all that we need. In such a case, the lowest grade of land under cultivation, called marginal land, will not be accounted an economic factor at all, will be a free good. If, now, an acre of better land yields to a certain amount of expenditure six bushels of wheat more than this marginal or non-economic land yields to the same expenditure, that six bushels of wheat will be properly credited to said acre of land as being, economically speaking, the specific product of that land alone. This, of course, does not mean that those six bushels are produced by the land without the aid of the other factors; but merely that *we can behave as if this were the case and in doing so will act wisely.* In other words, a farmer wishing to cultivate this piece of land would act wisely were he to pay for the privilege of doing so a share of the product not in excess of six bushels.

**Surplus Method of Imputation.**—Having now before us the concept of economic product, the question presents itself: How far

can this product be isolated, how far can the problem of imputation be solved? One method of doing this is suggested by the illustration just used in explaining what we mean by economic product. That method we may call *the surplus method,* since it depends on showing that the factor which is under consideration yields a surplus over another specimen of the same kind of factor which is a non-economic factor. This particular method of imputation is habitually applied to land; and has long been looked on as fairly adequate to isolate the specific product of this factor in the particular operations where it is being employed. Since it isolates the product economically imputable to the services of the land, it also, of necessity, isolates the importance or significance of those services; and this, in turn, insures that those services shall have a price expressing a significance not as low as their first extra-marginal one, nor higher than their marginal one. It follows that land, or land services, when used in farming anyhow, may be looked on *as a primary factor which in a very high degree realizes the principle we are defending,* that is, the principle that a factor tends to have a price expressing its effective significance over the whole economic field. And it is probably fair to say that this view has been held explicitly or implicitly by the great majority of economists.

**Dosing Method of Imputation.**—A second method of product imputation which has wide acceptance may be called *the "dosing" method.* This method thinks of the entrepreneur as making a series of experiments in which all but one of the factors engaged in a joint productive process are kept constant, while successive units of that one are added. The addition to product which follows the addition of the last or marginal unit of this particular factor is accounted the economic product of that unit. Further, since the different units of said factor are reciprocally interchangeable, the addition to product which follows the addition of the marginal unit of the factor is accounted *the effective economic product of any unit of said factor.* If this method is theoretically sound and feasible in practice, such experimentation would give each producer information as to the effective economic product and hence as to the effective significance of the factor in question in his particular business.

Whereupon, the competition of producers in different fields would insure that the price of that factor could not be as low as its first extra-marginal significance, nor above its marginal significance over the field of production as a whole.

In the opinion of the writer, this method of imputation is of much less general applicability than its advocates seem to believe. A good case can be made for its feasibility only in the simpler types of industry, particularly, farming. Nevertheless, since such industries utilize a very considerable portion of our store of primary factors, a method which can claim a considerable degree of success in isolating the economic product of factors in that particular field, surely ought not to be ignored in connection with the question we are now considering.

**Economic Product and Significance.**—It is hardly necessary to say that, if by any of the methods commented upon above we are able to isolate the economic product of a given factor in a particular productive operation, we shall also be able to isolate the *significance* of said factor in that particular operation. For the significance of said factor would of course be the same as the significance of its product; and that, we may assume, would be clearly expressed in the money value of that product.

## III

### Knowledge of Significance in the Particular Industry Insures a Price Expressing Significance over the Whole Field

We have tried to show that in not a few cases the entrepreneur is able to ascertain in one way or another something about the significance or importance of a given factor in the particular industrial process in which it is operating. We have now to show that when this is true the natural working of competition must tend to establish for said factor a price which expresses its effective significance over the whole field. The reasoning by which this proposition is supported is plain. If the producer is able to ascertain the true significance of the factors in his particular operation, he will, of course, be ready to bid for a unit of such factor a price as high as

one which expresses such significance. But, with such a condition realized, the reciprocal bidding of different entrepreneurs must certainly keep the price from going as low as one which expresses the first extra-marginal significance, since this is necessary in order that extra-marginal buyers should be excluded. On the other hand, the persons who supply said factor must bid the price down to a price not higher than the one which expresses the marginal significance of said factor, since otherwise the marginal buyers would be excluded. Accordingly, under the condition supposed, that is, the condition which makes significance in the particular case ascertainable, the ordinary working of economic forces will tend to set the actual price of each factor at a point not as low as the first extra-marginal significance of that factor over the whole field, but, at the same time, not higher than its marginal significance over the whole field.

# CHAPTER XXX

## THE PRICES OF PRIMARY FACTORS AND SIGNIFICANCE (CONTINUED)

The process already described doubtless helps to make the prices of factors express their significance in production. In my opinion, however, that process is available in only a rather small minority of the cases which arise in real life. This opinion is based on the belief that in only a small minority of cases is it feasible to ascertain the economic product of a particular kind of factor among the numerous kinds which participate in almost any modern business operation. How, for example, would it be possible for the manager of a shoe factory to ascertain just how many pairs of shoes were properly to be credited to a "gang-punch operator" who does nothing more than punch holes for the eyelets, or to an "eyeleter" who merely puts eyelets into the holes made by the "gang-punch operator," or to a "hooker" who limits himself to inserting the lacing hooks where these belong? To choose the worst cases—those having no direct relation to shoes—in what conceivable way could the manager ascertain how many pairs of shoes could properly be credited to a janitor or an office boy? Surely there is no way. To a very large extent, the entrepreneur must content himself with knowing little more than that the factor under consideration is useful in the particular operations undertaken by him as a producer. As respects the specific product of that factor, he can in most cases have no trustworthy information. It follows that, if the price of each factor is to be made a price which expresses the effective significance of that factor, this result must be brought about by some process other than that already described.

**Particular Significance Still Distinguishable.**—But, now, the question naturally arises: If the circumstances are such that, in the case of a given factor, we are unable to distinguish the particular significance of that factor in individual productive operations, is it

not unreasonable to conceive of that factor as even having any such particular significance? The general answer to this objection is that, *if the field of production as a whole be taken,* any given factor may have its own particular significance, in spite of the fact that such particular significance could not conceivably be isolated in any particular productive operation. As this is of much importance, I have constructed an imaginary illustration which, though highly unreal, will bring out the point in a form easily apprehended.

We will take for our starting-point an imaginary country, small and *completely isolated,* but organized economically on our present system. We will suppose that this imaginary country raises, along with many other things, two kinds of coffee, Java and Mocha, and consumes the output of these in either of two mixtures, so-called "blends," one of which contains 8 parts of Java to 2 of Mocha, while the other contains 6 parts of Java to 4 of Mocha. No one, surely, would claim that a producer of the 8-2 blend could isolate some portion of his output and truthfully affirm that the portion thus isolated was the specific product of the Java used, while the rest was the specific product of the Mocha. Nevertheless, it is easy to show that, even in this case, each of these factors, the Java and the Mocha, has its own specific significance.

In the first place, there must be just one division of the output of coffee between the two blends which, in view of the demands of consumers and the amount of that output, is, theoretically, the correct one. Secondly, when that division had been brought about and equilibrium established, the prices of both blends would be definitively fixed at points representing their effective significances to consumers. We will now suppose that those definitive prices of the two blends are 44 cents and 41 cents, respectively; that, of these sums, 2 cents must in each case be allocated to the entrepreneur as expressing the effective significance of his factor; and that no other economic factors are required after the coffee has been raised. Under these conditions, plainly, 42 cents must express the *joint* significance of the 8 parts of Java and the 2 parts of Mocha contained in a pound of the 8-2 blend, while 39 cents must express the joint significance of the 6 parts of Java and the 4 parts of Mocha contained in a pound of the 6-4 blend. But, now, can we distinguish the significance of the Java from that

of the Mocha? Surely, yes. From the data assumed, we easily derive two simultaneous equations of the first degree,[1] the solution of which would disclose the precise significance of each pound of Java and each pound of Mocha. These significances turn out to be just 45 cents for Java and 30 cents for Mocha.

But, perhaps, the student may wonder if this is not mere mathematical juggling. The correct answer is surely a negative one. These prices really express the true effective significances of the two kinds of coffee. This is proved by the consideration that it would be the duty of the authorities of a socialist state to *treat* a pound of Java as if it had an effective significance of just 45 cents, and a pound of Mocha as if it had an effective significance of just 30 cents. For example, if there arose a demand for some other blend of coffee, say, a 7-3, the authorities ought not to consent to supply this new blend unless its price would justify putting into it Java having a significance of 45 cents and Mocha having a significance of 30 cents.

**Actual Process Automatic and Corrective.**—The preceding paragraph has proved algebraically that, even in a case where there was no chance for isolating some portion of the product as being the specific product of a particular factor, each of the two factors, after all, had its own particular significance, expressed by 45 cents and 30 cents respectively. If, now, it can be shown that there is a process whereby the prices of these two kinds of coffee would naturally be made to approximate 45 cents and 30 cents, our main contention with respect to factor prices would be established in a case which would seem to be as difficult as any that could arise. There is, in my opinion, such a process. It is necessarily less direct than that discussed in Chapter XXIX; but it is fairly adequate none the less.

In general, this process may be described as a process which is at once *automatic* and *corrective*. By calling the process automatic, I mean that the competition of entrepreneurs, on which the price of a factor must depend, is *not guided by a consideration of the specific importance of the factor* in question to themselves. In this respect, they act blindly, "follow their noses." Stated more fully, this means

[1] $8x + 2y = \$4.20$ and $6x + 4y = \$3.90$.

that the entrepreneur does not first form his business plans; then determine what a given factor is worth in those plans; then, finally, come on the market offering to pay for said factor the price corresponding to its estimated worth. Instead, his procedure is usually the reverse of this. That is, he begins by frankly accepting the market factor prices of the moment as being substantially the prices which he will have to pay anyhow; then proceeds to regulate his business policy as regards the use of factors in view of the height of said market prices; when, finally, the business policies which those market prices have led him and other entrepreneurs to adopt, automatically work things out so that the prices for factors which are finally established are necessarily prices which express the effective significances of those factors in the productive process.

But the process by which factor prices are brought to the right position is a *corrective* process as well as an automatic one. By this I mean that it accomplishes its task by correcting factor prices when they have become wrong, rather than by *directly setting up right prices*. Whenever a wrong factor price appears, that wrong price itself starts reactions which tend to replace that price with the right one, which reactions, theoretically, can not cease till that task has been accomplished.

**Two Types of Correction Needed.**—The prices of factors may call for correction in either or both of two ways: (1) in respect to their height as compared *one with another,* that is, *relatively,* and (2) in respect to their height as compared *with their true significance,* that is, *absolutely.* Factor prices are relatively wrong if the ratios between them are different from those which obtain between the correct prices. Thus, in our coffee illustration, the prices of Java and Mocha would be wrong relatively unless they showed the same ratio as the correct prices, that is, 3 to 2. On the other hand, they would continue to be right relatively as long as they showed this same ratio even though both were much higher or much lower than 45 and 30 cents,—though, for example, they were 60 and 40 cents or 30 and 20 cents. Absolutely, however, no prices would be right except 45 cents and 30 cents. Naturally enough, the accomplishing of these two types of correction calls for two types of reactions.

**The Entrepreneur Factor.**—In setting out to show that each factor tends to get in the long run the price which expresses its effective significance in production, we begin with the most central factor of all, that is, the factor supplied by the entrepreneur himself. It no doubt has an odd sound to speak of the profit of the entrepreneur as a price; nevertheless that profit virtually is a price, though a contingent one. Of course, the services of the entrepreneur can not be sold separately from the goods they are embodied in, and so cannot have a price separate from the prices of those goods. Still, in buying any product, we in effect buy from the producer those factor services which he has already bought from other persons and, in addition, the factor services which he himself has put into that product.

It follows from the above analysis that the total demand schedule for products in general may properly be conceived as being in one aspect the demand schedule for entrepreneur services, while the total supply schedule of products in general may properly be conceived as being in one aspect the supply schedule of entrepreneur services. Further, both these schedules have a very high degree of elasticity just because they represent every variety of product. The demand for products in general tends to vary *inversely* as the rate of profit just as it would so vary with respect to any other element adding to its price. So, the supply of products in general varies *directly* as the rate of profit.

From these last considerations it follows that the entrepreneur factor gives us *a typical case of increasing-cost goods*. That being true, the soundness of our principle, as applied to the entrepreneur factor, follows as a matter of course. For goods of this type *necessarily have a price which expresses at once their marginal cost and their marginal significance*. Accordingly, a rate of profit must tend to prevail which not only coincides with the marginal supply price of the service rendered, but also expresses the effective significance of that service in production.[2]

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[2] From this in turn it results that what is left of the value of the product after the profit of the entrepreneur has been deducted expresses the *joint* effective importance of the non-entrepreneur factors concerned in supplying said product.

**Correcting Relative Factor Prices.**—The starting-point of the automatic reactions which tend to correct relative factor prices is the fact that the business success of an entrepreneur does not commonly involve his employing a definitely fixed amount of any particular factor. Instead, he is usually free to employ little or much of that factor. This possibility is due to several causes. (1) In not a few cases, the entrepreneur can find *substitutes* for a given factor. Thus, he is not obliged to use stone in making a house, since concrete or brick are available for that purpose. (2) In most industries, it is possible to *alter the proportion* in which the factor in question is combined with other factors. Thus, agriculture can employ much or little labor with a given amount of land. (3) Industries which turn out several different products can *diminish their output of a product using a large proportion of a given factor,* while increasing their output of some other which uses a smaller proportion of that factor. (4) As a last resort, when an entrepreneur wishes to reduce the amount used of some particular factor, he is at liberty to *shift his investment* to some entirely different industry, one in which the factor in question is naturally employed in a proportionally smaller amount.

But not only may the quantity of a given factor which an entrepreneur finds it necessary to use vary within a fairly wide range, one of the chief moments in determining what policy at this point is the better one, is *the relative height of the price* of that factor. Thus, if wages are high and rents low, the farmer will naturally use less labor than on the opposite hypothesis.

Let us now suppose that at a certain time something like complete equilibrium among economic forces had been established with all prices theoretically correct. Further, let us suppose that into this situation was somehow injected *a too-low price for one of the factors* which, obviously, would make the prices of other factors relatively too high. With this change in conditions, the following series of reactions would naturally be set up. (1) Producers would be led to employ more of the too-cheap factor, *less of other factors;* (2) the second of these results—*the diminished employment of other factors*—would soon bring into existence *a market surplus* of those other factors; and (3) the presence of this surplus of other factors would

inevitably start *a decline in the prices of those other factors* which, theoretically, could not cease till those prices *had fallen low enough to restore the correct ratio* between them and the price of the factor which had first gone down.

**Illustration from the Coffee Blends.**—In order to make our thinking on this matter as definite as possible, let us apply the reasoning just outlined to our coffee illustration. In doing this, we shall need to add a few further data to those originally assumed. In particular, we will suppose that the annual outputs of the two kinds of coffee quite regularly amount to 340,000 pounds of Java and 160,000 pounds of Mocha; and that these outputs will be most wisely utilized if devoted to producing 200,000 pounds of the 8-2 blend and 300,000 pounds of the 6-4. Remembering, now, that the correct prices of the two kinds of coffee are 45 cents and 30 cents, prices which show a ratio to each other of 3 to 2, our immediate task is to prove that the natural, spontaneous working of things would inevitably tend, under the conditions assumed, to give Java and Mocha *a pair of prices which showed this very ratio, though their absolute level might be much lower than 45 and 30 cents.*

As a first step, we note that the correct prices themselves, that is, 45 cents for Java and 30 for Mocha, would, theoretically, *insure that the relative quantities of the two blends which were produced would be* just what, by hypothesis, they ought to be, namely: *200,000 and 300,000 pounds.* The truth of this statement necessarily follows from *the conditions of our hypothesis* which made 45 cents and 30 cents the correct factor prices, *provided* the two blends were being produced in the amounts indicated. Because of that fact, we can be sure that, with coffee prices at 45 cents and 30 cents, and *with the two blends being produced in the correct proportion,* cost and price would be just equal in each blend; hence profits would be the same in both blends; hence all tendency to increase the production of either blend at the expense of the other would be eliminated. Not so, however, if by some chance the 8-2 blend *should be overproduced,* the 6-4 *under-produced.* At once the profit on the 6-4 blend, would exceed that on the 8-2 because of the corresponding changes in the prices of the two blends. As a result, *the supposed shift in production would*

*be quickly reversed,* and the two blends would once more be produced in the correct proportion. That is, *the correct absolute prices,* 45 cents and 30 cents, *would insure the production of the two blends in the correct proportion.*

But not only would the correct absolute prices of Java and Mocha insure that the two blends would be produced in the proper proportion, the same would be true of *any pair of prices for Java and Mocha which showed the same ratio,* for example, 48 and 32 cents or 42 and 28 cents. This necessarily follows from the fact that the substitution of any one of these pairs for the absolutely correct pair *would leave unchanged the comparative profitableness of the two blends.* Entrepreneurs would, therefore, be led as before to produce the two blends in the correct proportion.

We have seen that any pair of prices for Java and Mocha having the same ratio as the correct ones would insure the production of the two blends in the correct proportion. It follows that any pair of factor prices which did *not* fulfill this condition would *not* permit this result. Thus, let us suppose that, in some way or other, the price of Java got down to 40 cents though that of Mocha remained at the correct figure—30 cents. Under this hypothesis, both blends would show an excess profit, but this excess profit would be greater in the case of the 8-2 blend,[3] since that blend contains a larger proportion of the too-cheap Java. In consequence, entrepreneurs would hasten to increase the production of the 8-2 blend and diminish that of the 6-4. That is, these wrong relative prices of Java and Mocha would have caused an over-production of the blend containing more of the too-cheap coffee, and an underproduction of the blend containing more of the too-dear coffee.

But, now, the second of these consequences resulting from the wrong relative prices of the two coffees—*the underproduction of the blend containing more of the too-dear Mocha*—would inevitably bring into existence *a market surplus* of that too-dear Mocha, for the reason that the diminished production of the 6-4 blend would release more Mocha than could be utilized in the increased production of the 8-2 blend. For example, getting enough Java to make 60

[3] Ten per cent as against eight, on the outlay for coffee.

pounds more of the 8-2 blend would require diminishing the output of the 6-4 blend by 80 pounds, a procedure which would release 320 pounds of Mocha, of which quantity only 120 pounds could be utilized in producing the new 60 pounds of the 8-2 blend; so that the net result would be *a market surplus of Mocha amounting to 200 pounds.*

And now our goal is in sight. The presence on the market of a surplus of Mocha could not but start a *fall* in the price of that factor, a movement which, if carried far enough,— to 26 2/3 cents—would restore the correct ratio between its price and that of Java. Finally, the fall in the price of Mocha *is bound to go that far;* for any price above that position would fail to eliminate the differential profit to be obtained in the production of the 8-2 blend; hence would fail to stop the overproduction of that blend; hence, finally, would fail to eliminate the surplus stock of Mocha. Thus, a price for Java which was relatively too low would start a series of reactions which would correct the situation *by bringing down the price of Mocha in the same proportion,* so that the two prices would once more be correct relatively.

**Other Opportunities Starting Reactions.**—The fundamental condition necessary for the starting of those reactions which in the end restored the correct ratio between the prices of Java and Mocha was that producers should have *opportunities to reduce their employment of Mocha while increasing that of Java,* when the presence of a too-high relative price of Mocha made this change of policy desirable. But, in choosing for our illustration this case of coffee, while we gained in simplicity, we deprived ourselves of the most fertile sources from which opportunities enabling producers to change the proportions in which they utilize different factors can be derived. Four such sources were described on page 377; but of these four, the terms of our hypothesis permitted us to use *only the third.* That is, the producer could reduce his consumption of the too-dear Mocha only by shifting production from the 6-4 blend to the 8-2.

But, in the actual business world, the conditions are *vastly more favorable,* especially in the case of primary factors. In the actual world, opportunities to reduce the employment of any particular

factor also come from the other three of the four sources described. We can employ *substitutes* for a too-expensive factor; we can reduce the *proportion* in which that factor is combined with other factors in the same processes; and we can *shift* from one industry calling for much of said factor to another calling for but little. Obviously, these facts must in themselves increase the likelihood that, in the actual business world, wrong relative prices for factors will be automatically corrected.

**Correcting Absolute Factor Prices.**—We have seen that while spontaneous reactions tend to maintain correct relative prices among factors, in the process of accomplishing this result, those reactions are likely to bring all factor prices *below* their correct absolute level. We must now give a moment to showing how this price aberration also is naturally self-corrective.

Our starting-point is the fact that there is a rate of profit which, though necessary to maintain the supply of the needed entrepreneur service, is *all that is required to accomplish this end,*—is the *maximum* as well as the minimum rate. To this condition, we add the points brought out on page 376; that the rate necessary to maintain the supply of the entrepreneur factor *is also the rate which expresses the effective significance of that factor* and, hence, that the *residue* left for the other factors is *a correct expression of the effective significance of those other factors taken together.* With these conditions before us, our task becomes very simple. When the reactions which were necessary to make factor prices correct relatively to one another had brought factor prices in general below their correct level, producers generally would find themselves getting a profit in excess of their natural maximum. This fact would dispose them to expand production all along the line; the adoption of this policy would cause an increase in demand for factors in general; that increase in demand would start an advance in the prices of factors in general; which movement, finally, could not cease until the correct absolute level for those prices had once more been established.

# CHAPTER XXXI

## THE SYSTEM OF PRICES AS A WHOLE

In the last two chapters we have tried to work out a tenable doctrine as to the processes by which the prices of the most fundamental elements in the economic order—the primary factors or cost-goods—are determined. It now becomes our duty to try to bring these ultimate[1] processes into relation with those more immediate or superficial ones which are embodied in the law of single price, the laws of supply and demand, the laws of cost, and so on. In other words, we must try to get some notion of price determination as a complete process, some notion of *the system of prices.*

### I

### There Must Be a Coherent, Self-Consistent System of Prices

**The Interdependence of All Prices.**—Perhaps the most natural introduction to an attempt to get a bird's-eye view of the price system as a whole is to make ourselves realize that there *is* such a system. Prices are not a mere aggregate of unrelated entities or only slightly related entities. Instead, we should realize that, in very important senses, *the prices of all goods are interdependent and must tend to form a coherent, self-consistent system of prices.* Obviously this doctrine is in some degree explicit or implicit in our previous study of prices. Thus, in saying that the price of a wooden chair is determined by its cost of production, we thereby say that there is interdependence between the prices of products and the prices of the cost-goods entering into those products. Again, in affirming such determination of the price of the chair by its cost, we implicitly affirm that there is interdependence between the prices of *all products from one common cost-good,* such as wood or steel or labor.

[1] Logically ultimate.

But, while the interdependence of prices has in some degree been brought out in our previous study, it has been so little emphasized that one might easily get the impression that the determination of the price of each commodity is a matter by itself, or anyhow that there is no general, all-inclusive interrelationship among prices. In an account of final price determination, therefore, it is important to lay some stress on this point. Put in a formal way, it may be stated as follows:

*All prices, especially the prices of produced goods, are interdependent; and equilibrium among the price-making forces can be approximated only when all prices have come to form a coherent, self-consistent system.*

**Cost-Goods and Products.**—As already noted, two very important reasons for affirming the interdependence of prices are explicit or implicit in the doctrines which make the prices of products coincident with their costs of production. In the first place, this very relationship of cost-good and product directly involves interdependence. If two things *have* to be equal, there must be interdependence between them. This conclusion is unavoidable whatever theory we may hold as to the direction of causation between cost-good and product. If we accept the doctrine given in Chapter XXX that, generally speaking, the value of the cost-goods is communicated to the product, the interdependence of the prices of the two types of goods is manifest. If we accept the doctrine which is apparently held by some writers that the price of the product always determines the prices of the cost-goods, the result is the same: the two sets of prices must coincide, must therefore be interdependent.

**Common Intermediate Cost-Goods.**—A second reason for the necessary interdependence of prices, derived from the principle that the prices of cost-goods and products must coincide, is the fact that many products involve the consumption of *one common cost-good*. Thus, rails, girders, saws, knives, razors, watch springs, etc., being all made from steel, must have their prices influenced by that of steel and at the same rate, hence those prices must be interdependent. The price of any one of them could be determined in-

dependently of the others only in case the steel used in making them were sold, in the same market at the same time, for different prices corresponding to its different uses. But such a state of things we have already shown, in the law of Single Price, to be impossible.

**Common Primary Cost-Goods.**—But, admitting this point, cannot the prices of all products *made from one particular kind of raw material* be determined independently of the prices of products *made from other kinds of raw materials?* For example, though the prices of rails could not be determined independently of the prices of engines, girders, saws, planes, and knives, still the prices of all products made from steel could surely be determined independently of the prices of all products made from lead or copper or zinc or wood. On the contrary, this doctrine is scarcely less absurd than the former. Like the steel knives, steel saws, and steel girders referred to in our first example, products made from steel and products made from lead, copper, and zinc *also have common sources,*—the human labor of many different kinds and the capital or carrying power which is required in all the industries concerned. Consequently if the prices of products made from steel were to be determined independently of the prices of products made from lead or zinc or copper, then the different kinds of labor, the waiting power, and the other factors which constitute common sources for steel, lead, zinc, and copper—would each have to have many different prices in the same market at the same time, in contravention of the Law of Single Price.

**Different Goods Reciprocal Substitutes.**—We have seen that the interdependence of the prices of many goods anyhow is assured because of the principle that the prices of products and cost-goods must coincide. Other more inclusive reasons why there must be interdependence of price grow out of the fact that different kinds of goods occupy toward one another the relation of *reciprocal substitutes;* if there are serious obstacles to buying a particular good, some other can more or less completely take its place. This is conspicuously true in the case of groups of goods intended to serve the same general purpose, such as the different means for furnishing

illumination, or the different foods, methods of transportation, and so on. As a result of such possibility of reciprocal substitution, *the demand schedules* of these different goods *are interdependent,* each one is affected by changes in the others. A change in the price of gas modifies the demand schedules of electric lighting, of kerosene oil, of candles, etc.; a change in the price of wool modifies the demand schedule of cotton; a change in the price of meats modifies the demand schedules of potatoes, beans, etc. But, if the demand schedules of different commodities are interdependent, their prices must also be interdependent; since changes in their demand schedules, other things being equal, must change their prices. Interdependence of prices, therefore, follows as a result of the fungibility of different goods, the possibility of their reciprocal substitution.

The particular ground of interdependence just brought out is most certainly present and most clearly seen in the case of groups of goods intended for the satisfying of the same want. But the same statements apply in a degree to almost all kinds of goods. In a broad but legitimate meaning of the language, practically all goods occupy toward one another the relation of reciprocal substitutes. Each is competing against every other for the opportunity to satisfy our wants. A rise in the price of any one tends to cause a change in the demand schedules for all or many others. Changing their demand schedules, it must of course tend to change their prices. Thus, again, all prices are interdependent.[2]

**A Self-Consistent System of Prices.**—We have shown the soundness of the first part of our general proposition, which says that all prices are interdependent. The second part follows as an immediate inference from the first, and should call for no other argument. Since all prices are interdependent, are reciprocally determined, *reactions among them cannot cease—equilibrium cannot be reached—till they together form a coherent, self-consistent whole.*

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[2] It is hardly necessary to warn the student that there is some danger of exaggerating the importance of this interdependence of prices. It would certainly be a serious error to imagine that the facts just brought out seriously impair the value of the principles of price hitherto presented. These facts must be thought of as considerations which warn us not to apply principles without taking into account all the facts.

### Illustrative Problems

1. It is quite unsound to imagine that the wages paid in a particular coal mine or in coal mining generally are determined independently of wages in other lines of industry. Wages are prices, and, like other prices, they are bound to be interdependent. Give specific reasons for the correctness of that statement in the case of wages.

2. It has been held by some writers that almost any tax system, if only it is old enough, will fall on the different classes of citizens with about the same weight as would any other system raising the same amount of revenue. This doctrine is doubtless overstated; still it contains an element of truth. Give the general argument in support of it.

3. (a) "A protective tariff is a device for taxing the consumers of the commodity involved in order to give big incomes to the producers of that commodity."

(b) "A protective tariff is a device for taxing the consumers of the commodity involved in order to insure the maintenance of the industry which produces that commodity."

Looked at broadly, the second statement is much nearer the truth. Assuming the tariff to be kept constant, there is no reason for expecting that the producers of the protected industry will reap exceptional profits therefrom. Argue in support of that statement.

## II

## Price Determination as a Complete Process

We have seen that all prices are in greater or less degree interdependent and that they tend to form a coherent, self-consistent system of prices. We must now attempt to get a bird's-eye view of this system,—to see it as a totality, with its parts articulated. In doing this, we shall set up a series of hypotheses, the earlier ones very simple yet helping us to understand some aspects of the present order.

### First Hypothesis: Only One Primary Factor; Its Amount or Output Fixed; No Disutility Cost; Many Products Wanted; All Demand Schedules Elastic; Conditions Static.

We begin with the hypothesis that there is but on primary factor; that this has no disutility cost; that many products are wanted; that

all demand schedules are elastic; and that conditions in respect to population, tastes, methods of production, etc., are substantially unchanging.

Starting with such a hypothesis, let us suppose that the numberless forces at work have acted and reacted till they have brought about a condition of *equilibrium,* that is, a condition under which all forces have become exhausted or neutralized by opposing forces so that there is *no longer any tendency to change* in the prices prevailing. What in such a state of things will be true with respect to the operation of our laws of price and their relation to one another?

**All Price Laws Operative.**—In the first place, it is evident that in such a state of equilibrium *the results naturally worked out by the several laws of price which are applicable to this type of case must be realized.* The primary factor and the several products must each have but one price. Supply and demand for the single factor and for each product must have come to equality. The price of each product must express its marginal significance or utility. The price of each product must equal its cost of production. The price of one primary factor must express its marginal significance in products; and, under our present hypothesis of perfect elasticity in all demand schedules, *this marginal significance will be found, not in just one or a few products, but in each product.*

**One Law Finally Determinative.**—A second and much more important fact of the situation will be that, though the results of all the laws of price applicable to this type of case will have to be realized in the state of equilibrium supposed to be established, *one of these laws, and only one, will be finally determinative.* The requirements that a commodity must have but one price, that supply must equal demand, that price must coincide with cost, all may have been realized many times without bringing about a state of final equilibrium. But, just as soon as the law that the price of the single primary factor must be such as expresses its marginal significance in products has been realized, equilibrium, *final* equilibrium, will have been attained. This condition—this coincidence of the price of the primary factor and its marginal significance—and this condition only, will establish

a definitive, final, set of prices. Doubtless such a state of things can be reached only after there have taken place innumerable reactions in which *other* forces and *other* laws will have been operative. But the reaction bringing about this coincidence of the price of the primary factor and its marginal significance in products will be the *final* reaction. With the coming of that price, equilibrium will have been reached, tendency to further change will cease. It follows that, under our present hypothesis, the marginal significance of products—*viewed as the determinant of the price of the single primary factor*—must be conceived as the ultimate determinant of the prices of products. But, in interpreting this proposition, we must not fail to bear in mind the phrase in italics. The marginal significance of products is the final determinant of the prices of products only when viewed as the determinant of the price of the single primary factor. But the clearing up of this point must wait for the statement of our next hypothesis.

**Other Laws Subordinate.**—As a complement to the point last made, we have to note that, under our present hypothesis, the principles or laws of price *other than* the one affirming the coincidence of the price of the primary factor and its marginal significance, are *little more than instrumentalities* through which said coincidence is established and through which *the domination of the whole situation by the marginal significance or utility of products* is assured. The principles of single price and of supply and demand are operative every moment, responding to every slightest change in conditions, while the final equilibrium is being worked out. The principle of cost lags a little behind, but only a little. Together they are insuring that equilibrium cannot come till the finally determinative condition—the coincidence of the price of the primary factor and its marginal significance—is realized.

### Illustrative Problem

"The law of single price tends to insure the domination of marginal significance over the entire stock of any single commodity; the laws of cost tend to insure such domination over the whole field—as between different commodities." Defend that statement.

## Second Hypothesis: Same as Before; but Most Demand Schedules Inelastic

We now make a slight change in our hypothesis in order to bring out unmistakably the fact that the marginal significance of products was the final determinant of prices *only when viewed as fixing the price of the primary factor.* This doctrine was indeed implicit in the case embodied in the preceding hypothesis, and has already been noted. But, under that hypothesis, we could not easily make the point clear. As long as all demand schedules are perfectly elastic, the price of *every* product will coincide with *its own* marginal significance, so that we are in danger of fancying that the marginal utility of products *directly* determines the prices of products without reference to the marginal significance of the primary factor. In fact some writers who have done much to establish the correct doctrine have more than once carelessly spoken as if the price of each product were determined by its own marginal significance only.[3] The unsoundness of this view is easily seen when we change our hypothesis so as to make *some of our demand schedules inelastic.*

To be quite specific, let us suppose that *only two* of our demand schedules are elastic, those of the marginal and first extra-marginal products; that the marginal significances, and so the marginal demand prices, of the supra-marginal products are all *much above* their marginal cost of production; and that there are no extra-marginal demands for these products. Under this hypothesis, the competition of producers would bring the prices of all supra-marginal products down to their cost of production, that is, to figures *below their marginal significances.* In other words, the prices of these supra-marginal products *would not even coincide* with their marginal significances. Those marginal significances, therefore, could not be credited with fixing their prices. It is only *the marginal significance of the marginal product* which figures in the process. But even this is not the end of the matter. This highly important thing, the marginal significance of the marginal product, could not be determined independently of the quantity of the primary factor available. Had

[3] Writers of the Austrian school. See Note 6, Appendix.

there been more of that factor, more products could have been produced, and so the marginal significance of the marginal product would have been lower; had there been less of that factor, the opposite result would have been reached. It was possible, therefore, to reach final equilibrium only when the marginal significance of the marginal product had communicated itself to the primary factor and brought the price of said factor into coincidence with that significance. That is, as affirmed above, the real condition of final equilibrium is not the coincidence of the price of each product with its own marginal significance, but rather *the coincidence of the price of the primary factor with its marginal significance as determined by the marginal significance of the marginal product.*

In order to make this rather difficult matter as definite as possible, we may summarize the doctrine applicable to our present hypothesis in the four following propositions:[4]

(1) The marginal significance of the marginal product having been determined, determines the price of that product;[5]

(2) The price of the marginal product having been determined, determines the price of each unit of the primary factor entering into that product;

(3) The price of a unit of the primary factor entering into the marginal product having been determined, determines the price of all other units of that factor; and

(4) The price of all units of the primary factor having been determined, determines the prices of the supra-marginal products.

Here the logical starting point of causation is the marginal significance of the marginal product; but it is such a starting point *because it fixes the price of the primary factor, and through it of all products.* Under our first hypothesis the case seems otherwise because the price of every product coincides with its own marginal significance. But this arises from the accidental circumstance that all products have perfectly elastic demand schedules. The fact that, when this condition is altered, final price determination still goes on without the necessity of any correspondence between the prices of the supra-

[4] It may be worth the student's while to go over the diagrammatic presentation of this case in Note 7 of the Appendix.

[5] See Note 8 of the Appendix.

marginal products and their marginal significances shows that the really essential thing is the coincidence of the marginal significance of *products in general* with the price of the single primary factor.[6]

### Illustrative Problem

If we ignore the influence of disutility, we have to say that, as respects the course of causation between cost-goods and products, this runs from the former to the latter in the case of individual products, but from the latter to the former in the case of products taken as a whole. Explain what is meant and show why it is true.

### Third Hypothesis: Same as Last with Disutility Cost Added

Our hypothesis up to this point has involved the use of a single primary factor of which we have a fixed amount, or output. We now modify that hypothesis so as to make the supplying of the primary factor dependent on human consent, and involving a disutility, thus giving variability to the quantity supplied. The change in our analysis which this change in the hypothesis makes necessary, is easily anticipated in view of the discussion on pages 361-363. The price of the primary factor must be such as expresses a significance at least as great as the marginal disutility involved in supplying that factor; and, of course, the prices of products must be high enough to justify such a price for the primary factor. This does not mean that the price of the single primary factor is no longer coincident with the marginal significance of its marginal product, but that said price *must also* be coincident with the marginal disutility of supplying said primary factor. The final condition of equilibrium among the price-making forces is a price for each unit of the primary factor which fulfils both these conditions.[7]

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[6] An interesting variation from our last hypothesis would be one in which the demand schedule of even the marginal commodity was discontinuous, so that the marginal significance of this product was separated by a considerable interval from its first extra-marginal one, and at the same time it was separated by a considerable interval from the highest significance of the next possible product wanted. Under this hypothesis the decisive factor would be, not necessarily the marginal significance of products, but a significance not higher than that marginal, and not as low as the first extra-marginal one.

[7] For the diagrammatic presentation of this, see Note 9 of the Appendix.

### Fourth Hypothesis: the General Situation of Real Life: Many Factors, Some Fixed, Some Variable in Amount, Some Having a Disutility Cost; Some Demand Schedules Elastic, Some Inelastic

The conditions of real life are, of course, vastly more complicated than any of our previous hypotheses—quite too complicated, doubtless, to permit a really adequate statement of the processes of final price determination under those conditions. Nevertheless, it may perhaps be worth while to summarize in a general statement the account of this matter which naturally follows from the doctrines with respect to the prices of primary factors which were laid down in Chapters XXVIII to XXX, and from the conclusions reached for the highly simplified hypotheses which we have just considered.

**Summary.**—Supposing static conditions and the perfect freedom of competition postulated in economic theory to be realized, equilibrium—disappearance of all tendency to further change—can come only, and then must come, when the price of each primary factor is brought into substantial coincidence with a significance not higher than its marginal one and not as low as its first extra-marginal one, and, if said factor involves a disutility, into coincidence with a disutility as great as the marginal disutility of supplying said primary factor and not as great as the first extra-marginal one. When that equilibrium is reached, the price of each product having a perfectly elastic demand and supply schedule will be one which expresses its marginal significance and equals its marginal cost; the price of each product having an elastic supply schedule but an inelastic demand schedule will be one which equals its marginal cost and is likely to be one which is below its marginal significance, though it *may* coincide with that significance; and the price of each constant-cost product must be one which equals its cost of production and coincides with its marginal significance, if at all, only because that significance adjusts itself to a price determined by cost.

# CHAPTER XXXII

## PRINCIPLES GOVERNING THE MONEY STANDARD

The preceding chapter brought to a conclusion our discussion of that broad division of Economics known as Exchange. Before finally dismissing this subject, however, we shall find it useful to give some further attention to the study of Money. Money, as we know, is the medium of exchange; and as preliminary to the treatment of exchange, we set forth in Chapter XIV some of the more simple and obvious truths concerning Money. But now, with a thorough study of Exchange as a whole behind us, it becomes possible, as also necessary and proper, to make a deeper investigation of the medium by which it is conducted, and to present the more essential principles governing that medium. In this chapter we take up the principles governing the money standard.

The monetary standard, the student will remember, is that something which fixes the significance or value of the money unit. Thus in the United States, 25.8 grains of gold, nine-tenths fine, fixes the value of the dollar;—whatever value may at any time attach to 25.8 grains of gold, that same value will attach to one dollar. Now this very definition shows that the monetary standard is, in an important sense, the foundation of the whole system, and that a change from one standard to another, or even mere liability to change, may carry with it the threat of serious harm. Further, experience has shown that it is by no means an easy task to insure that such changes will not take place. The monetary standard has many times been displaced in spite of the utmost preventive efforts a government could make; and, in fact, governments themselves have more than once through mistaken legislation inadvertently brought about the very displacement which they were trying to avoid. Manifestly, then, it is quite important that we should know the natural laws which concern the monetary standard in order that we may be able rightly to manage that standard.

These principles may be grouped in two classes: (1) those concerned with the immediate standard, *standard money,* which directly, immediately, fixes the value of the money unit, and (2) those concerned with the *ultimate standard* or the something which fixes the value of standard money itself, and, in doing so, finally fixes the value of the money unit.[1]

## I

### Defining and Determining Standard Money

The first principle to be laid down with respect to standard money is the following:

> **Principle I.** *The standard money of any system must be a money which is at par and which has its value fixed independently of its relations to other moneys.*

The proposition that standard money must be a money which is at par is hardly more than a corollary from the definition of standard money.

Standard money is the *immediate standard* of the system, the money which immediately determines what the money unit is worth. To it, the money unit is anchored. Its value is the value given to the unit. But, plainly, we cannot say of a given money that it fixes the value of the money unit unless a unit of that money has the same value as the money unit it is said to fix. Thus we cannot regard gold coin as the standard money of the United States if we find that ten-dollar gold pieces are worth eleven dollars each; for, in that situation, some other money worth ten-elevenths as much as gold must really be fixing the value of one dollar. No money which has a value above or below the value of the unit can be fixing the value of that unit.

We have just seen that the standard money must be one which is at par. But we commonly find two or more moneys fulfilling this condition,—and which one of the money at par will then be standard? This question is answered by the second part of our principle. The

[1] See pages 165, 166.

standard money is that one of the par moneys which has its *value fixed independently* of the other moneys. In most cases the soundness of this contention is evident enough. Thus, in our system, gold coin is firmly anchored to the metal contained in it,—has its value fixed by that metal quite without regard to the values of the other moneys. On the other hand, the values of treasury notes, bank notes, and small silver have no sort of relation to the value of the material in them, but are kept equal to that of gold coin by being made directly or indirectly *exchangeable* for gold coin. Manifestly, then, as between gold coin and the other moneys named, the former is the standard: it is the thing which *determines;* they are things which *are determined.*

The case of a par money which is not kept either directly or indirectly convertible with gold coin is not so plain; but the conclusion must be the same. Such a case is illustrated in most countries by small silver which is not redeemable,[2] and, in this country, by silver dollars. No institution is bound to redeem these coins in gold or its equivalent.[3] Further, the metal in the coins is much less valuable than gold coin, and is changing in value, as measured in gold, every day.

Yet all the time these silver coins remain just equal in value to gold coin. Just why they do so is a problem with which we are not here concerned. Here we are asking: Which of these two is standard money? Which is principal and which subordinate? Which determines and which is determined? Surely there can be but one answer. The gold coin is fixed in its position, being anchored to the metal it contains, while the silver coin, showing no constant relation to the metal in it, is free to move. Hence, unless their equality of value is to be attributed to mere coincidence, and surely this is out of the question, we must conclude that the value of the silver coin adjusts itself to that of the gold coin,—*is determined by that of the gold coin.* Gold coin, therefore, *the money which has its value independently determined,* is established as the standard money.

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[2] It is redeemable in this country.

[3] The United States Treasury would probably undertake to do so, if they became less valuable than gold.

### Illustrative Problems

1. In the United States in 1870, gold coin was worth $1.21 per dollar, silver coin $1.23 per dollar, and greenbacks $1.00 per dollar. Which, if any, must have been standard money?

2. For several weeks during the panic of 1837 coined money, whether silver or gold, was at a premium of from 2 to 4 per cent, while bank notes were at par. Which, if any, must have been standard money?

3. Add to the first problem that in 1870 national bank notes were worth $1.00 per dollar and were redeemable in greenbacks. Which money, under this condition, must have been standard money?

4. Supposing that all kinds of money are at a premium, only bank credit in the form of checks being at par, what then would be standard money or the immediate standard?

Our first principle has given us little more than a rule for *recognizing* standard money. The second gives us one of the most important laws *determining* what particular money occupies this place.

> **Principle II.** *If among those moneys in any system which are a valid tender in the payment of debts, differences of exchange value arise, the cheapest of such valid tender moneys establishes itself as the standard money, and the rest go to a premium.*

A good illustration of this principle is found in the monetary history of 1870. At that time paper money, gold coin, and silver coin showed differences in value, measured in paper, as follows: Gold was worth 21 cents more than paper, and silver was worth 2 cents more than gold. These differences could have manifested themselves in any one of at least three ways: (1) paper might have been quoted at $1, gold at $1.21, and silver at $1.23, or (2) gold might have been quoted at $1, silver at $1.02, and paper at $.82; or (3) silver might have been quoted at $1, gold at $.98 and paper at $.81. If the first hypothesis had been realized, it can be seen by reference to Principle I that paper would have been the standard money; if,

instead, the second hypothesis had been realized, gold would have been the standard money; finally, if the third hypothesis had been realized, silver would have occupied the place of honor. In fact, the first hypothesis was realized; and the natural law which insured that it would be is the one stated in our second principle. The cheapest of these legal tenders was bound to establish itself against the rest.

The proof of this principle is relatively simple. By hypothesis all the moneys in question are valid tenders for debts. Under that condition which will be the standard money for debts? If I have a right to pay my debts with either of two moneys, one of which is worth three cents more than the other, which will I naturally choose? The cheaper, of course. And what I would naturally do, experience proves that debtors generally do. It follows then that the cheapest of two or more valid tenders will be the standard money of *debts*.

Secondly, for the sake of convenience in business transactions *the standard money of debts and that of prices must, if possible, be the same*. One can imagine the inexpediency of having in business one meaning for the dollar in debts, and another for the dollar in prices. A grocer fixing the prices of his goods in one kind of dollar, while his note to the jobber was in another sort of dollar, would meet serious inconveniences; so he surely would not conduct business in this way unless obliged to. But, thirdly, he will not be obliged to do this, because the standard money for debts and the standard money for prices naturally draw together and become one. The standard money of debts is fixed by natural law as the cheapest of all the valid tenders, and this result men cannot change, save under very exceptional circumstances. But the standard money of prices, on the other hand, is determined wholly by the choice of the individual dealer. He may freely rate his goods in gold dollars or silver dollars, or greenback dollars, or even pounds or marks if he desires. It is accordingly *possible* for the standard money of prices to adjust itself to the standard money of debts; and since, as we have already seen, such an adjustment is for business reasons highly desirable, it will inevitably be brought about. In a word, the cheapest of the valid tenders becomes not only the standard for

debts but also the standard for prices—the standard money in general.

Three special applications of the principle just established give us three corollaries of that principle which have played a part of very great importance in the monetary history of modern times. Those corollaries are as follows:

**Corollary 1.** *If two metallic moneys are freely coined and full legal tender at a coinage ratio different from the market ratio, the money coined from the overrated metal will establish itself as the standard money.*

**Corollary 2.** *If, in the case of a legal tender circulating note which has hitherto been kept redeemable in what has hitherto been standard money, a suspension of payments takes place, such legal tender note will almost certainly establish itself as standard money.*

**Corollary 3.** *If any form of credit money or money substitute ceases to be redeemable in standard money or its equivalent, and, though not a true legal tender, is made in effect a valid tender in payment of debts by any set of circumstances, such money or money substitute will for the time being usurp the place of standard money.*

To illustrate the first of these corollaries, suppose that, when 1 ounce of gold is worth on the market 16 ounces of silver, the government mint treats 1 ounce of gold as worth only 15 ounces of silver, putting into each silver coin less metal than is needed, considering the market value of the two metals. The mint thus treats silver as worth more than it really is; in technical language, it *overrates* silver. Under these conditions, each silver coin will be worth less—it will be cheaper money—than the corresponding gold coin. Hence it follows from Principle II that the silver coin will assume the place of standard money.

The second corollary, relating to the behavior of legal tender circulating notes, offers no serious difficulty. So long as such notes

are kept redeemable in standard money, they of course will be worth as much as standard money. When, however, the issuer of the notes suspends payment on them, their value inevitably declines, because, although people may expect them to be again made redeemable at some future time, they are not willing to give as much for a probable future payment as for a certain present one. But when notes with the faculty of legal tender become less valuable than the money which has hitherto been standard money, this fact brings into operation Principle II,—that is, these notes displace the money hitherto standard, and themselves usurp its office.

The circumstance alluded to in the third corollary has repeatedly arisen in our history when a concerted suspension of payment on their notes by practically all banks has led the general public by tacit consent to treat those notes as a valid tender for debts. As a result, the notes behaved as if they were a true legal tender—in other words, Corollary 2 was brought into operation.

In a similar way, bank credit, deposit currency, as it is often called, has more than once been made the standard money by a concerted refusal of banks to pay in *any* form of money. At such times, the public has come to accept bank credit as a valid tender for debts, thus making bank credit the immediate standard, while all forms of money proper went to a premium.

## Illustrative Problems

1. In the United States in 1830, both silver and gold were freely coined at a ratio of 15 to 1, when the market ratio was 15.8 to 1.

(a) Which metal did the mint overrate? Explain carefully.

(b) Which of the two moneys, if any, must have been standard money?

2. In 1830 France had a system similar to ours but its ratio was 15.5 to 1.

Answer the same questions for it as for the United States under 1.

3. Why did the United States have the greenback as its standard money between 1862 and 1879?

4. In 1717 the British government decreed that a gold guinea should be treated as the equivalent of 21 silver shillings; though, judged by the

bullion in them, the guinea was worth 20½ shillings. Which must have become standard money? Explain.

5. In the panic weeks of 1837, bank notes were the standard money. (See Problem 2, page 396.) How do you explain it?

## II

### Defining and Determining the Ultimate Standard

Thus far our discussion has been concerned with standard money and the laws governing it. Two other principles of considerable importance have to do with defining and determining the *ultimate standard.* The first of these is the following:

> **Principle III.** *If by any process whatsoever the standard money is kept constantly equal in value to a definite quantity of some outside commodity or group of commodities, such commodity or group of commodities constitutes the ultimate standard of the system.*

This principle can perhaps be best illustrated by imagining a system in which there was no metallic money, some kind of paper money being the standard money, but in which that paper money was all the time kept equal in value to a certain amount of gold or silver or some other outside substance. In such a system, the principle tells us, the gold or silver or other outside substance to which the standard money was kept equal in value would constitute the ultimate standard.

As a matter of fact, this particular method of realizing the condition indicated in our principle is not actually employed, though some very able economists have favored it. The plan generally pursued is to have, as our standard money, coins made of the very metal which we wish to use for our standard, in our own case, gold. These coins we keep equal in value to the quantity of gold (25.8 grains) desired for our ultimate standard by maintaining two conditions which insure this result: (1) the metal gold has *free and gratuitous coinage*—the mint must turn into coin of full weight without substantial charge whatever gold is offered; and (2) under

ordinary conditions, *free melting* of gold coin is permitted. When these conditions are realized, it is plainly impossible that the coin and the metal, being practically interconvertible, should have different values. No one would give more for the coin than for the metal, since he could have that metal turned into coin without charge; so he would not give more for the metal than for the coin, since he could at will turn the coin into the metal by melting it.

In the above illustration of our principle, we supposed that a certain amount of gold was chosen as the ultimate standard. But, of course, some other metal, for example silver, may be chosen, or something not a metal, say, wheat, or a group of things made up of many items: a ton of coal plus 10 yards of cotton plus 100 pounds of flour, etc. A standard of the latter sort has been advocated by many able men and is commonly known as a *multiple standard*. But, whatever the particular thing or things chosen, the idea is the same: if there is something outside the standard money which fixes the value of that standard money, that something is the ultimate standard.

The principle needs little argument to establish its truth, since it is little more than the corollary from the definition of the ultimate standard. The ultimate standard is the something behind the immediate standard, standard money, which *finally determines* the value of that money, just as that standard money determines the value of the money unit. Now, it can hardly be doubted that the gold or silver or wheat or list of goods used in our illustrations answers to this definition of the ultimate standard. First, by hypothesis, the standard money is kept equal to such gold or silver or wheat; and so, the latter is, in some sense, standard. Secondly, since this gold or silver or wheat is not, in turn, dependent on something else for its value, such gold or silver or wheat constitutes the final, ultimate, standard.

Perhaps a doubt may still linger in the student's mind. "It is plain that the value of our standard money, gold coin, and the value of the gold metal in that coin are equal. But are we sure that the value of the metal fixes the value of the coin rather than the reverse? Surely, gold as a metal has its value influenced by the value of the gold money." The last statement is no doubt correct: the value

of money influences that of the metal just as truly as the value of the metal influences that of the money. Nevertheless, one of these, the metal, must be looked on as, in the more ultimate sense, a determinant. The gold coin of any one country constitutes only a small fraction of the total gold coin of the world, and a still smaller fraction of the total gold metal—coin, articles made of gold and gold bullion. Conditions tending to bring about a change in the money of a particular country independently of the gold stock of the world must, of course, tend to exercise some influence on the value of that gold stock. But, after all, the small fraction cannot be credited with determining the value of the whole. The total gold stock must have a value resulting from the action of numberless other forces as well as the causes which influence the value of the money of a single country; and, to the value of the total gold stock as thus determined, the value of the gold coin of any particular country must tend to gravitate. As long as the money unit of a country is kept equal in value to a certain quantity of the metal gold, that *metal* must be recognized as *the truly ultimate standard.*

### Illustrative Problems

1. A few years ago, the United States remodeled the monetary system of the Philippines, making silver pesos coined only for the government the standard money, but providing that gold exchange on New York should be sold to any person wanting it in exchange for silver pesos at a rate of $1 for two pesos. Such a system tended to establish what ultimate money standard in the Philippines?

2. Great Britain puts into every sovereign 113 grains of pure gold, coins these sovereigns for everyone free of charge, and does not attempt to hinder the melting of coins. Under these conditions what necessarily becomes the ultimate standard of Great Britain? Explain fully.

3. What must have been the ultimate standard of the United States in 1830? See Problem 1, page 399.

4. What must have been the ultimate standard of France at the same date? See Problem 2, same page.

Our second principle with respect to the ultimate standard has to do with a situation where the standard money is itself the ultimate

standard. Prior to 1893 British India had as its ultimate money standard 180 grains of silver; that is, the unit coin, the rupee, contained 180 grains of silver and was freely coined, thus making the metal itself the ultimate determinant of the value of the rupee. But, in the year named, the government stopped the free coinage of silver with the result that coins rose in value as compared with the metal in them, fluctuating from 32 cents down towards, but never to, their bullion value, 22 cents. Thus the silver rupee had nothing behind it to fix its value—it moved up and down independently of anything else. Accordingly, the silver rupee fixed the value of the unit (the rupee) not only immediately *but also ultimately;* and hence was itself the ultimate standard. This illustration alone would seem to furnish sufficient proof of the following principle:

> **Principle IV.** *If the standard money is not kept constantly equal in value to a fixed quantity of some commodity or group of commodities outside itself, but varies in value independently of the variations of any other object, then such standard money is itself the ultimate standard of the system.*

### Illustrative Problems

1. What was the ultimate standard of the United States between 1862 and 1879? Explain.

2. What was the ultimate standard of the United States during the panic weeks of 1837? See Problem 2, page 396.

3. Suppose that after 1893 the government of British India had so managed things as to keep gold exchange on London constantly at 20 rupees for 1 sovereign (123.27 grains of gold). What would then have been practically the ultimate standard of India?

# CHAPTER XXXIII

## PRINCIPLES GOVERNING THE CIRCULATION OF MONEY

The second group of principles under our present subject concern the *circulation* of money—the capacity of money to form a part of the monetary stock, the active medium of exchange. Will a particular money circulate at all? What kinds of money have the greater capacity for circulating—the greater tenacity in circulation? To what part of the circulation is a particular kind of money likely to gravitate? Will it tend to be used in the ordinary business of exchanging commodities or will it more probably lie most of the time in the banks, serving the purpose of a reserve fund?

These and other related questions are of importance because a government may in one case find it desirable to keep a particular money in circulation; or in another case to drive a particular money out of circulation; or in still another to keep a particular kind of money down to a small stock, though not driving it out altogether; or again to segregate a particular kind of money in some special part of the system. A government may, I say, at some time desire to do any of these things; but it can no more accomplish its desire by merely decreeing such a result than it can bridge a river by that process. The circulation of money is ruled by natural laws; and a government can accomplish its objects in that field only by establishing such conditions that the natural laws which rule the circulation will automatically work out the results desired. It is of prime importance, therefore, that we should be familiar with the more influential of these natural laws.

The first principle which we shall lay down runs as follows:

**Principle I.** *Under modern conditions, the full and continuous circulation of any kind of money in almost any*

*country of high commercial development requires a measure of legal authorization from the government of that country.*

The most decisive proof of this principle is to be found in the fact that, in all but very exceptional cases, the circulation of a money is limited to the country where it is legally authorized. Even nations lying geographically side by side, closely connected in industry and commerce and using the same monetary standard and the same system of denominations,—even such nations do not usually circulate each other's money save along the border. Thus, despite the proximity and the intimate relations of Canada and the United States, Canadian money has no currency in this country outside Detroit, Buffalo, and a few other similarly situated places.

This connection between the circulation of a money and its legal authorization by the home government is, of course, no mere accident. From early times governments have been wont to issue the money of their respective countries; so that now, habit, if nothing more, would make the public chary of accepting any medium of exchange not authorized by government. Further, authorization by a government creates a presumption that that government will make some effort to insure the goodness of the money authorized. Such moneys, therefore, will naturally be more readily accepted in ordinary transactions than money which has nothing but private backing. Again, as between a money authorized by one's own government and one authorized by the government of some other country, men will naturally have more confidence in that authorized by their own. Finally, the government itself will usually discriminate against foreign moneys in certain relations, for example, in determining what shall be receivable for public dues or what shall be a legal tender for debts. This public discrimination will exercise more or less compulsion on private persons to take a similar attitude.

We have seen that the power of a money to circulate usually depends on some degree of governmental recognition. Our next principle puts this case somewhat more strongly.

**Principle II.** *Under modern conditions, the power of any money to hold its place in the circulation in the fullest*

*sense varies as*[1] *the extent to which it is given power to do the different kinds of money work.*

Thus, a money which will not be accepted by the government in payment of taxes or which cannot be used as bank reserves will have less tenacity in circulation than a money which enjoys these prerogatives. In part, evidently, the capacity of a money to circulate depends upon the willingness of people to accept it in return for commodities and services. But some persons, anyhow, will need to use a part of the money, received in exchange for their goods, for the purposes indicated,—to pay taxes and maintain reserves. They will, therefore, hesitate to accept, or perhaps absolutely refuse to accept, money which cannot be ultilized for these purposes. Further, if the money is one which they are not really free to reject in trade, they may yet be free, as in the case of the circulating notes of a bank, to return it to the issuer, getting in exchange some money which possesses the prerogatives lacking in the one in question. This course they are likely to take, and, in so doing, they put such money out of circulation.

An obvious inference from the principle is that, if we wish to diminish the tenacity in circulation of any money, we can usually do so by depriving it of some prerogative;[2]—refusing to receive it for taxes, forbidding its use as bank reserves, or prohibiting bankers who receive it from paying it out over the counter.

The two principles just set forth affirm that moneys of superior quality—those having recognition by the government and possessing all money prerogatives—remain more persistently in circulation than inferior moneys. We have now to remark on a principle which seems almost in flat contradiction of these. It affirms that inferior moneys have greater power in circulation. The formula "bad money drives out good," commonly known as Gresham's Law, is the one most in vogue. As thus stated, the doctrine was always inexact;

[1] Remember that in Economics "to vary directly as" means only to vary in the same direction, not proportionately, and "to vary inversely as" means only to vary in the opposite direction, *not proportionately.*

[2] This must be qualified by a consideration of the principle about to be commented upon.

and, however stated, it is now true to a much smaller degree than in earlier times. Perhaps the facts are fairly well covered in the following:

**Principle III.** *Moneys which are inferior in respect to exchange or substance value commonly show greater tenacity in circulation than those which are superior in these respects.*

The truth of this principle has been amply confirmed in monetary history,—in fact, the principle is one of the few in economic science which have been accepted primarily as inductions from experience. Its explanation is easily found in the causes at work. The chief of these causes is the fact that, in the circulation proper—*the use of money in actual exchange transactions*—the superiority or inferiority of different kinds of moneys shows relatively little; whereas in various other uses, less strictly belonging to the circulation proper, or even quite outside the field of money, the superiority or inferiority shows relatively much.

Take first the case of standard metallic money,—gold coin in our system. Coins short in weight have no difficulty passing in trade. Only a careful test would prove that they are actually short; and this test few people in the hurry of business care to make. Further, most people assume that, even if a coin is really short, no trouble will be experienced in passing it on to someone else. In *active circulation,* then, inferior coins serve as well as any. But not so in other relations. If a jeweler wishes to melt a gold coin to get the metal for use in this trade, he naturally chooses a ten-dollar piece of full weight, 258 grains, rather than one weighing somewhat less, say, 240 grains. The same is of course true of the exchange dealer who has occasion to send gold abroad in covering his drafts. Again, the peculiar position of the banker strengthens in another way the tendency of short-weight coins to stay in circulation. Governments and other institutions to which the banker makes payments will discriminate against inferior coins, so that, to save himself a loss, he must refuse to receive them except at a discount. But depositors, in turn, anxious to escape this discount, studiously avoid presenting such coins for deposit,—instead, keeping them for

their own use in trade, while they take to the bank full weight coin or other par money.

The illustration just used concerns standard metallic moneys which show differences in *substance* value as well as in exchange value. But paper moneys, which differ in *exchange* value only, submit easily to the same principle. Thus, prior to 1863, the bank notes of this country issued by all sorts of institutions and under all sorts of conditions, circulated at different values measured in standard money, some worth 100 cents on the dollar, some worth 95, some 92, some 97. Of these notes the best ones usually showed less capacity to hold their place in the circulation than the inferior ones. Their acceptability in ordinary trade was not, indeed, as good as that of gold coin which was only a little inferior in weight. But, assisted by the ignorance of people in general, by the indisposition of tradesmen to displease customers by challenging money offered for goods, and by the anxiety of workingmen to keep their jobs, anyone who held such money could easily pass it on at a value greater than that recognized by banks and other dealers in exchange.

On the other hand, the inferior notes were received at banks and public institutions only at a full discount. Accordingly, they were not taken in for deposit, but were sorted out for use in trade, while notes of the better grades went in. Further, the institutions in question, desiring to make room for their own notes, and to accumulate only moneys which would be useful as reserves, made a practice of sending home for redemption all the foreign notes they received; hence, the fact that the ones they received were chiefly the better ones, resulted directly in driving these better ones out of circulation. Thus, there were at work not only forces tending to choose the inferior moneys for *the circulation proper,* but also forces tending positively to drive the superior out.

It perhaps ought to be added that even when the inferiority or superiority among moneys is not openly recognized, though admitted by the initiated, the inferior is likely to show a stronger hold on the circulation. Banking institutions being, as we have seen, in a position to discriminate by paying over the counter the less desirable forms of money and retaining for reserves the more desirable, can and do keep the former in more active circulation.

The points made in the foregoing discussion apply in large measure to all kinds of money. The considerations now to be brought forward concern only credit money. Credit money, for example, a bank note, is simply a promise of the issuer to pay upon demand a stated sum of standard money or its equivalent; and *such money is, by return to the issuer, retired from circulation.* Accordingly, the degree to which such a money is able to maintain its hold on the circulation depends on the strength of the tendency to send it home. This in turn depends chiefly on two conditions: (1) the strength of the motive for returning it, and (2) the ease with which the operation can be carried out. As respects the first, if a bank note or other credit money is qualified to perform all the functions which the standard money that it calls for can perform, there will be little, if any, reason for sending it home. If, however, it is not receivable for public dues or is not a legal tender for ordinary debts, there will be some holders, anyhow, who have ample motive for sending it in to be exchanged for money more adequate for their purposes.

The working of the second condition on which depends the strength of the tendency to send credit money home—the ease with which the operation can be carried out—may be seen from an imaginary illustration. If a noteholder lives in Boston while the issuing bank is located in Butte, Montana, and the noteholder has no way of securing redemption except by sending the note from Boston to Butte and bringing back the money at his own expense, there will probably be little of such sending undertaken. In such case, even though the note is not usable for the payment of taxes, the holder will content himself with retaining it for use in ordinary business. Thus, such notes tend to continue in circulation rather than go out by return to the issuer. They have tenacity in circulation just because there is difficulty in sending them home.

Although the conclusion just reached was based merely on a consideration of the causes at work, its soundness has been fully confirmed in the history of bank note issues. Thus, in the United States in the early part of the last century, when the provisions for securing the "homing" of notes were quite inadequate, those notes which could be returned only at considerable trouble and expense

almost completely monopolized the circulation as against notes which could easily be returned. This was conspicuously illustrated in the city of Boston as between the notes of outlying towns and those of Boston itself,—the latter being largely driven out by the former. The condition was remedied by providing for the redemption at par in Boston of the outside notes, and establishing an arrangement whereby the institution which performed this task became in effect a clearing-house for these notes.

Under the complicated conditions of modern business, the money stock of a country naturally distributes itself, or is consciously distributed, into different parts called funds, each of which has a special function. Thus, a very considerable part of the stock is used as a medium of exchange in ordinary business. A second large quantity constitutes the reserves of the banks, especially those outside of New York City. The New York bank reserves constitute a third fund, distinct from ordinary bank reserves because, for reasons too complicated for review in this place, the general banking reserves of the country largely rest upon it. This fund also requires differentiation because it is the chief source from which must come the money employed in the settling of international balances. Another very significant fund is the 150 millions of gold reserved by law in the Federal Treasury for the redemption of treasury notes. Under the Federal Reserve system adopted a few years ago, the reserves of the so-called regional banks ought perhaps to be treated as constituting still another special fund.

Now, it is a matter of some consequence that the proper sort of money and that sort only should find its way into each particular fund; and the government takes pains so to manage the issue of different kinds of money that, as far as possible, proper distribution will be automatically effected. *The result is largely brought about by issuing just the right denominations of the money which is meant for a given fund and for the appointed uses of that fund.*

Thus, if it is desired to keep a certain type of money *out of* banking reserves, especially out of the New York reserve, this is accomplished by putting out the money in small denominations. The

principle which furnishes the basis for such a policy may be stated as follows:

> **Principle IV.** *In the distribution of the monetary stock of a country, money of smaller denominations naturally gravitates to the Circulation Proper, the part which is being used directly as a medium of exchange; moneys of larger denominations gravitate to the Reserves, the funds kept by banks and other institutions to meet credit obligations.*

This principle has been utilized in the practical management of our silver certificates, and so may be said to have been established inductively. But it naturally results from the conditions and forces present. There is comparatively little need for money of large denominations in ordinary transactions, since persons engaged in those transactions usually pay by means of checks. If, then, we restrict the issue of any kind of money to large denominations, we are certain to keep the greater part of it out of the ordinary circulation. On the other hand, in the ordinary transactions of the market there is much need for small money, whether in effecting payments outright or in making change. In consequence, we can easily infer that money of very small denominations will remain in ordinary circulation and will stay out of the bank reserves, unless it is issued in greatly excessive amounts. As a matter of fact, experience shows that it is extremely difficult to satisfy the everyday need for money of small denominations. The government of the United States has been obliged over and over again to expand its issue of fractional silver and of small bills from $1 to $5.

## Illustrative Problems

1. In 1849, when the United States had free coinage of both gold and silver, a change in the relative values of the two metals sent silver coin to a premium, i.e., two silver half-dollars were worth $1.02. What naturally happened to silver coin?

2. During the Civil War, the government of the United States thought best to borrow money by paying soldiers, contractors, *et al.*, with treasury notes. Yet it was desirous that these notes should not be

added to the circulating medium, but should soon get into the hands of people who would lay them one side and hold them till they were due, —in other words, treat them as bonds. The Treasury finally hit on a pretty good plan to accomplish this, namely, the issuing of these notes to bear interest, that interest to be compounded every six months but to be paid only at the end of three years. How would this plan tend to accomplish the end sought?

3. In 1862, when gold payment on treasury notes had already been suspended, the United States began the issue of legal tender notes. In consequence gold went to a premium, soon being worth $1.15 per dollar. What naturally happened to it?

4. Experts consider it very desirable that the bank note circulation should be elastic,—should expand readily when the need for money increases and contract promptly when the need diminishes. Of these two phases of elasticity, the second is in a sense the more important, in that it really provides for the first. In order to secure this power of prompt contraction, various provisions have been enacted or proposed: (a) Establish a good many redemption agencies at convenient points throughout the country; (b) prohibit any bank from paying out in regular business the notes of another bank except in the city or district where the issuing bank is located; (c) prohibit the use of bank notes as reserves by banks outside the system; (d) take away the right of legal tender to government; and so on.

Explain in each case why the provision set forth would naturally contribute to the contractility of the note circulation.

5. In 1894, on account of excessive issue of silver and paper money, as also on account of the marked decline in business activity, the United States had a great excess of circulating medium. This fact (combined, doubtless, with other causes) led to a considerable contraction by export to other countries. What kind of money must have gone?

6. In 1886, Congress provided by law for the issue of silver certificates of $1, $2, and $5 denominations, and in 1900 decreed that 90 per cent of the total amount of such certificates should be in denominations from $10 down. What did they hope to accomplish by this legislation?

# CHAPTER XXXIV

## PRINCIPLES GOVERNING THE MOVEMENTS AND DISTRIBUTION OF MONEY

The monetary stock of any country, as also of the world, is constantly in motion. Scarcely a day passes without the shifting of considerable sums of actual cash between different districts of the same country; and even the movements between nations, though by no means so frequent, are in the aggregate very extensive.

**Interest in Money Movements.**—For various reasons these movements of money are of much interest and significance, both to the specialist and the general public. First, every money movement considered by itself tends to *change the distribution* of the money stock among different districts or countries; and, if for any reason the movement in one direction is long enough continued, it may cause an excessive supply at one point and a deficient supply at other points. As a matter of fact, this result is much less likely to occur than people commonly suppose, and even if it did occur it would probably be quite harmless. Occasionally, however, there may be changes of a really undesirable character; and so a knowledge of the principles governing them is needed as a basis for a corrective policy. Moreover, it will be decidedly worth our while to have a knowledge of even the harmless changes in distribution, lest, in thinking them pernicious, we should suffer needless anxiety and make ill-advised efforts to modify them. In the second place, there are some kinds of money movements which indicate *diseased conditions* in the monetary system, and a knowledge of these movements is pretty certain to prove useful when we are trying to locate the trouble. We shall, therefore, in the present chapter, set forth the natural laws regulating movements of money between different countries or districts, and regulating the territorial distribution of the stock of money which results from these movements.

A notable fallacy in connection with the subject of money movements is almost constantly and everywhere current. It assumes that *buying any goods or services from another country naturally means losing some of our stock of money to that country.* If we give up the production of some commodity for which we show comparatively little fitness, and commence buying that commodity from our neighbors, people at once condemn the trade as certain to draw away a portion of our money. They may even fancy that, if we allow perfect freedom of trade, *all* our money will be drained away.

**Trade and Money Movements.**—This error was fully, though indirectly exposed, under the Principle of Reciprocity, so a briefer statement, with a slightly different emphasis, will serve in the present connection. The dealings of one country with another, or, more exactly, of the people of one country with those of another, *do not in themselves lead to net money movements.* Even if international dealings were commonly effected with money directly, there would be few or no net movements, assuming that we have in mind intervals of at least a few months in length. The reason is plain. No sensible person wants money for the money's sake. Our neighbors are anxious to get money by *selling their products,* not because they wish to keep that money, but because they wish to use it again to *buy our products.* This fact appears clearly enough within the limits of our own town; and in no essential respect does the trade within a town differ from the trade between it and other towns, or from the trade between the country as a whole and other countries. Money naturally comes back as surely as it goes away.

Again, under the credit régime which actually prevails in interlocal trade, *no considerable* movements of money ever take place except in very unusual circumstances. The reciprocal claims and obligations between the dealers of different countries which grow out of their trade dealings are transformed into claims and obligations between the bankers or exchange dealers of those countries; and, between these bankers, money itself actually flows only when their reciprocal claims fail to balance. Furthermore, this failure to balance must be of appreciable duration—a few weeks at least; for

usually an exchange dealer with an adverse balance will as a first resort borrow from his correspondent, sending money only when it becomes evident that the adverse balance will not be turned into a favorable one for a long time.

**Capital Movements and Money Movements.**—What we have thus shown to be true of trade relations, we can also show to be true of *investment* transactions—the lending of capital by the people of one place to the people of another place. Transfers of capital between communities, like trade payments, primarily take the form of debts between the bankers of the different communities. A person in England who lends money to an American railroad by purchasing its bonds does not send over money to that railroad; his payment, exactly like a payment for wheat or cotton, appears as a debt created against some London house and in favor of some New York house. It is thus plain that, at the outset anyhow, such a shifting of capital does not constitute a movement of money.

But, someone may object, would it not necessarily mean a movement in the end? For transactions in capital, unlike trade transactions, are almost certainly *one-sided;* Europe might lend much to America while America lent little to Europe, and hence, to balance the claims against them which have grown out of buying American bonds, the European houses would apparently sooner or later be compelled to send money. But even here another alternative is possible. While America holds an abundance of claims on Europe and may use them to demand money if she likes, she probably will not do so, because it is not money that she wants. The borrowing railroads do not want money, but rails, cars and locomotives. And either they will buy these articles abroad with the borrowed money, or they will buy abroad some other articles in order to release American capital and labor which can produce the rails, etc., at home; in either case, America buys from Europe more goods than usual. Thus the debt of European exchange houses to American exchange houses arising out of the fact that Europe is lending us capital, is likely to be matched with a debt of American houses to European houses arising out of the fact that Americans have bought

from Europe more goods than usual. The debts are accordingly cancelled and no money will flow either way.

**Circumstances Causing Money Movements.**—We thus see that neither trade nor investment transactions *necessarily* involve money movements. They may, however, involve such movements, if the circumstances happen to be of a particular character. Confining our attention for the moment to trade relations, let us examine what those circumstances are. Any fact which causes the total volume of goods or services bought by any community from other communities to remain for some time in excess of its sales to those other communities, will tend to bring about a net movement of money from the community whose purchases are in excess; on the other hand, any fact making the sales of a community exceed its purchases, will tend to bring about a net movement of money into that community. The argument is too simple to need elaboration. The exchange dealers of a community which buys more than it sells will for a shorter or longer period be in debt to the exchange dealers of other communities. But the creditor dealers do not like to wait indefinitely for their pay, and so, if there is no promise of an early turning of the tide, they will probably order the money itself delivered. This principle is illustrated almost every year in the trade between America and Europe. The exports of America, being largely agricultural, are naturally "bunched" at certain seasons; while its imports from Europe, being generally manufactured products, are distributed more uniformly through the year. Consequently, temporary balances against Europe are almost sure to appear in the fall season and to lead to movements of money toward America.

There are likewise conditions under which investment transactions may cause money movements. An exchange balance created against a lending country by the movement of capital is, as we have seen, usually offset through the natural readjustments of trade—the expansion of imports into the borrowing country. But if the movement of capital from country to country is very large and rapid, the growth of trade may not be rapid enough, for an extended period, to restore the balance. In this event, the creditor country,

unwilling to lose the use of its capital, if only for a few weeks, will probably order the gold shipped.

Bringing the essential points of the foregoing discussion into a single statement, we have the following principle:

> **Principle I.** *The dealings of one country (community) with other countries in respect to goods and capital do not in themselves naturally lead to net movements of money either to or from said country; but, if circumstances are such as to maintain a balance of claims for or against said country for a period of several weeks, a net movement of money to or from that country is probable.*

Based upon the above principle are five corollaries, each of which should, with only the briefest statement, explain itself.

> **Corollary 1.** *Money tends to flow to any country (community) where the rate of discount is exceptionally high, and vice versa.*

If the rate of discount in any country or community, let us say New York, rises to a point two or three per cent higher than in London or Paris, bankers having connections in New York will hasten to avail themselves of this opportunity to make exceptional profit by transferring funds to New York. Naturally, they will so far as possible use credit for this purpose. But, if the high rate persists and they continue to send funds, they will soon exhaust the available supply of credit and, thereafter, will send money.

> **Corollary 2.** *Money tends to flow from a country where the stock is abnormally large as indicated by the state of the central reserves.*

This corollary is closely related to the last. An excessive money stock causes a fall in the rate of discount, which brings into operation Corollary 1. In extreme cases, an excess of money raises the prices of commodities; this naturally brings about an expansion of the import trade; and the latter, by creating a balance against the country, finally causes an outflow of money.

**Corollary 3.** *There tends to be a continuous net flow of money from a country which is a producer of standard money metal.*

Corollary 3 remarks the tendency of money to flow from a country producing standard money metal. The reason for an outflow of this kind is not far to seek. The natural and easy way to market standard money metal is to take it, directly or indirectly, to the mint, have it turned into money, and sell it as money—that is, spend it for goods. By this process the money stock of a gold-producing country is constantly being augmented, and is constantly becoming excessive; and with an excess of money there come into operation the influences already cited under Corollary 2. This proposition needs emphasis chiefly because it shows the folly of undue anxiety respecting an excess of gold exports from a nation producing a large amount of gold. We should expect, as a matter of course, that the custom house reports of the United States or Australia would show them exporting more gold than they import. Gold is one of their important products which they naturally use to buy things they cannot produce so easily, just as they use wheat or wool.

**Corollary 4.** *Money tends to flow from any country which has experienced a marked decline in industrial activity.*

When business slackens there is less money work to be done; this makes the existing money stock excessive, and so brings into operation Corollary 2.

**Corollary 5.** *If a full weight metallic money comes to command a premium, it tends to be exported from the country.*

Full weight metallic money which comes to command a premium, is certain to be withdrawn from circulation almost completely; since it will seldom be accepted in exchange at as high a premium as that given on the bullion market. But, being withdrawn from circulation,

it becomes mere bullion, a metal, not money. Again, changing such a quantity of money into bullion inevitably makes the stock of bullion altogether excessive for the uses to which it can now be put. In consequence, the value of the bullion in the home market is lowered as compared with its value in other markets; to put it a little differently, the premium which the bullion bears at home is not so great as the difference between its nominal value as money and its value in other countries. It will therefore be exported to those countries where its value is greater.

**Money Drains Self-Corrective.**—The discussion of Principle I and its corollaries must by this time have made it clear that purchase abroad does not necessarily mean a loss of money from the purchasing country. But, further, if we look more deeply into this subject, we shall find that money drains, when they do occur, can, in all but a few special circumstances, safely be left to correction by natural causes.

**Removes Its Own Cause.**—First, the movement may be stopped by the automatic reversal of that condition which is necessary to bring it about. That condition is a high rate of exchange, a rate on London, for example, of $4.89; for obviously, the exchange dealer could not afford to send gold unless he got out of the transaction the value of a sovereign $4.866+ plus the cost of sending it, about three and one-half cents. But such a high rate of exchange will naturally set up an unusually strong tendency for the export of goods. If I am selling wheat to London, when claims against London—which will be used to pay for my wheat—are selling at several cents above par, my trade will be unusually profitable. I will therefore be eager to sell as much as possible; but so will other American exporters be eager to sell, and, competing against each other, we will shade our prices; with prices lowered, our eagerness to sell will be met with eagerness of Londoners to buy,—so that our export of goods will increase at a bound. But what, now, will be the consequence of the increase in exports due to the high price of exchange? Manifestly, those exports will put Londoners in debt to us, will increase the supply of claims, or exchange, on London. But when

exchange becomes abundant, its price will inevitably be lowered. And, finally, since, as we saw at the outset, a high rate is necessary if gold is to be exported, the lowered rate will tend to check the export. To put the whole argument in a sentence: Gold cannot go until exchange reaches a very high rate; but a high rate of exchange stimulates exports; the increase in exports presses down the rate of exchange; and the lowered rate of exchange stops the outflow of gold.

**Starts into Operation Corrective Processes.**—Not only is an outflow of money stopped by the automatic reversal of the condition which makes it possible, but, further, a persistent net movement of money tends to be stopped or even reversed by the action of conditions which its own continuance establishes. Three processes may be distinguished:

First, a money drain from any country makes the surplus banking reserves from which money for export is taken, in the chief commercial centers (London, New York, etc.) relatively small. Depletion of the surplus reserve will raise the rate of discount—interest collected in advance—on short time loans; since the rate on this kind of loan is almost entirely dependent on the size of the surplus reserve. A high rate of discount thus established will make the country a desirable market for lenders, and so will tend to draw in the floating capital of other countries.

Ordinarily this process is adequate to stop an excessive drain of money; but, if it does not prove so, a new and slightly different series of reactions follow and usually effect the desired result. When the central banking reserve becomes scanty, the inclination of people to buy or hold international securities,—the trade in which is usually based on borrowed capital,—rapidly diminishes. With a fall in demand, the price of securities also inevitably falls. But a lower price for securities will encourage foreigners to buy them, thus giving New York an abundant supply of exchange on Europe. Finally, since, as we have already seen, abundant exchange means a *low rate* of exchange, the condition necessary to further outflow—a *high* rate of exchange—is thus removed.

There is yet a third chain of causation which comes into operation probably a little later than the others. The same high rate of dis-

count which causes a fall in securities, if long enough continued, leads to a fall in the prices of the great export staples, such as cotton and wheat, which are speculated in like securities. This fall in price leads to increased buying by foreigners, which makes foreign exchange abundant, thus lowering the rate of exchange, and checking the outflow of money. Finally, if the outflow went on long enough to produce a scarcity of money in the country as a whole, there would result a general fall in prices, which would stimulate foreign buying all along the line until the direction of the money movement was completely reversed.

The foregoing arguments would seem to establish beyond question the following principle:

> **Principle II.** *Every net movement of money tends to be stopped, or even reversed, by the automatic reversal of that condition which is necessary to bring it about, or by the action of conditions which its own continuance sets up.*

From the above principle it is only one step to the following corollary:

> **Corollary.** *There is never any danger that an outflow of money from a particular country will go on till that country is denuded of its monetary stock.*

Every net movement of money, even a moderate one, tends automatically to bring about its own stoppage. But, obviously, if this is true of *every* net movement, it would prove to be true of any movement so extensive that it threatened the complete exhaustion of the money stock.

**Automatic Distribution.**— Another important principle regarding the distribution of the money stock, and one which is little more than a corollary from the last may be stated as follows:

> **Principle III.** *Generally speaking, the monetary stock of a country, or group of countries having the same standard, tends to distribute itself according to relative need.*

If the need of any particular country, as compared with other countries, is less completely satisfied, *this fact alone will tend to start a process of redistribution,* which continues till the several needs are satisfied in equal measure. The explanation of this process has already been anticipated. If the stock of money in one country, as compared with another, is small relatively to the money work to be done, this fact will show itself in deficient bank reserves, and such a deficiency, causing the rate of discount to rise, will bring an inflow of money for investment. A high rate of discount will, moreover, cause the prices of securities and of the great staples to fall, again resulting in an inflow of money. The process by which an excess in any country is corrected by an outflow to other countries is simply the reverse of those described. There first results from the excess an expansion of the bank reserves; large reserves bring down the rate of discount, making investments unprofitable; and this will cause capital—and, in time, money—to be exported. The low rate of discount will, moreover, occasion a rise in the prices of securities and the great staples; foreigners will then begin to sell freely on our markets, thus expanding our foreign debt; and a large foreign debt, raising the price of exchange, will very quickly result in the export of money.

The above argument treats of movements occurring between highly developed commercial nations having the ordinary economic relations. As between small communities where standard money metal is produced,—for example, South Africa and the Klondike, on the one hand, and the rest of the world, on the other, the working of things is, if anything, more simple. The extraordinary abundance of money (for in such places gold, even in its raw form, at once becomes money) and the great scarcity of all other goods, make prices excessively high; as a result, goods flow in at an extraordinary rate; the community has constantly a large balance of indebtedness against it; and money must constantly be sent out.

**Interference Sometimes Needed.**—Up to this point our discussion has placed a special emphasis upon the self-regulative character of monetary distribution. If taken in too absolute a sense, this might lead to a misunderstanding. The last of our principles

governing the movements and distribution of money must, therefore, be one which in some degree qualifies those heretofore laid down.

> **Principle IV.** *While, in general, the proper distribution of the world's monetary stock among the different nations can safely be left to the working of automatic forces, circumstances may arise under which it is desirable consciously to control particular movements of money, in order to maintain the stability of the system of credit.*

In a typical monetary system of our day, a large part of the total monetary stock consists of representative or credit money and bank credit. Under such an order, the foundation of *standard money* is vastly more important than any other constituent of the circulating medium; it is not mere money; it is emphatically the *basis of the whole system.* This is particularly true of that portion of the stock of standard money which we call the *ultimate reserve,* the reserve kept by a great central bank or, as in the United States, by the government, to redeem credit money. To maintain this reserve in adequate volume is of the greatest moment, not because we need it as a medium of exchange, but because, if it proves inadequate, the whole system will fall in ruins.

Accordingly, it is natural that every extensive movement of standard money should be jealously watched with reference to its possible bearing on the ultimate reserve of the system. When that reserve is being drawn down, it is not enough to say that, in the long run, an excessive drain will correct itself. We cannot afford to wait for the long run,—serious consequences may overtake us in the meanwhile. The disappearance of the ultimate reserve would mean the overthrow of the standard; and even the beginning of a depletion which threatened to be at all serious would excite such anxiety in the business world as gravely to injure industry and perhaps precipitate a panic. A nation may, for example, find itself experiencing the specie drain incident to a great war, a drain for which automatic regulation will not furnish a sufficiently strong or sufficiently rapid check. Or there may be a drain arising from the action of unwise

statutes or other artificial conditions, which at the very best cannot be changed for a long time. In such circumstances, it might easily be the duty of the government, or the great central bank, to take active and vigorous measures to check an outflow of standard money.[1]

## Illustrative Problems

1. During the years 1853 to 1864, inclusive, when France had a system of bimetallism at a coinage ratio of 15.5 to 1, while the market ratio was about 15.3 to 1, the French circulation absorbed about $680,000,000 of gold, and ejected about $345,000,000 of silver. Explain these facts, using one of the corollaries of Principle I.

2. "Between America and Europe there is usually a net movement of money toward Europe during the second quarter of the year, toward America near the end of the third, and early in the fourth, quarter." Explain why you would expect this to be true.

3. "A country has never been despoiled of its money by the working of its international trade."—Gide's Political Economy, page 120.

Why does he feel so sure about this?

4. A New York wheat broker sells 50,000 bushels of wheat to a Liverpool miller, and sells against it a sight bill of exchange for the proceeds, £8735 16s. The wheat cost him 84 cents per bushel.

(a) With exchange on London at $4.88, what would his profits be?

(b) What would they be with exchange at $4.84?

(c) What does this have to do with money movements? Explain carefully.

5. "Between New York city, as the banking center of the United States, and the country at large, there is usually a great money movement outward from New York during the summer and early fall, and an inward movement toward New York during the late fall or early winter."

Explain why you would expect this to be true.

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[1] The most important device employed for this purpose consists in raising the rate of discount, and thus bringing into operation Corollary 1 of Principle I.

# CHAPTER XXXV

## PRINCIPLES GOVERNING THE VALUE OF MONEY

Thus far in our discussion of money we have treated it as a thing apart from the general field of economic goods, a thing peculiar, and governed by laws of its own. Again, in our chapters on Price (Chapters XXIX-XXXI), we for the most part spoke of economic goods as if money, the thing in which the prices of those goods is expressed, were not to be considered as one of them, essentially the same in kind and governed by the same laws. But these implications are misleading. Money is in a sense an economic good, just as wheat and cotton are economic goods, and the time has now come when we must so treat of it. We must show that money, the thing in which the values or prices of most other goods are expressed, is itself subject to the laws of value and price.

*The chief defect in our earlier reasoning lay in the assumption that money was constant in value.* This assumption was encouraged by our emphasis on the idea that the money unit is tied to a certain definite quantity of substance, say 25.8 grains of gold, just as a gallon measure is tied to 8.33 pounds of water. But, as a closer examination will disclose, any such view is decidedly inaccurate.

The analogy between the case of the money standard and that of the liquid-measure standard is not as perfect as we have assumed. In using 8.33 pounds of water as a standard of liquid measure, we need have no anxiety that the bulk of the water itself will change, and so cause that of our unit to change; for *we can make those conditions which would modify the bulk of water—temperature and atmospheric pressure—absolutely the same in all times and places.*

But we cannot parallel this operation with gold and its value. We cannot say that we will have as our money standard the value of 25.8 grains of gold *under just the same conditions as prevailed when it was finally adopted in* 1873; for we can never reproduce

those conditions. All we can do, and all we try to do, is to keep the value of one dollar equal, at any particular time, to the value of 25.8 grains of gold *at that same time*. In doing this, we anchor the value of the dollar to a value which itself changes, and so, of course, the value of the dollar will change. Doubtless our policy in this matter is, on the whole, wise; for the value of gold changes very slowly, perhaps more slowly than that of any other single commodity, and, anyhow, we ought to have the same standard as the rest of the world, which is gold. But, whether wise or not, this policy anchors our money to something which changes in value, and so the value of our money changes, instead of remaining constant, as has all along been assumed.

**Measuring Money Value Changes.**—But, although changes in gold and money value do occur, it is not so easy to establish the fact of change or to measure its extent as the student might imagine. Gold, being the standard of all great commercial nations, there is practically no market where its value is expressed in terms of anything but the money unit. There is, therefore, practically no place where the *apparent* value of gold and money alters at all. In the United States, 25.8 grains of gold is always worth one dollar and, conversely, one dollar is always worth 25.8 grains of gold. Hence, our only method of ascertaining changes in the value of gold and money is to study *the movements of the prices of other things*. If gold, and so money, should all at once greatly rise in value, their own price—in terms of each other—would remain constant, but that of goods and services in general would fall. Conversely, a sudden fall in the value of gold and money would show in a rise of the prices of all other things. It would seem, therefore, that we need only ascertain the changes in the general level of prices to know the changes in the value of money; and, in large measure, this is what we try to do.

**Absolute and Relative Changes.**—But we scarcely begin an application of this formula when we run upon difficulties of a most serious nature. Changes in the value of money would surely express themselves in opposite changes in the level of prices. But the level

of prices may also be affected by a sudden collapse of business demand or a great fall in cost of production. In other words, a change in the general price level may really be, not a change in the value of money, but a *change in the value of goods.* Or, to use a better expression, some changes in the general level of prices have their origin in causes affecting goods rather than money; and, if called changes in the value of money at all, these may be distinguished as *relative changes,* while changes in the price level due to causes acting on money itself would be called *absolute changes.*

A familiar instance of a relative change is the following:

When, after a period of industrial stagnation, business begins to pick up, and people regain their faith in the future, there naturally takes place an expansion of demand for goods of all sorts, and in consequence a measurable rise in prices, starting among a few commodities but gradually extending until it covers, if not the whole field, at least a large portion of it. As the boom advances, this movement becomes more and more pronounced. Every one, believing prices will go higher, is eager to buy, that he may have something to sell at the higher prices; and, of course, his eagerness to buy means more demand and so contributes to the very price advance which he expects. This self-propagating movement continues until the expansion has passed all reasonable bounds, when suddenly some accident precipitates a general collapse of the boom,—pricks the speculative bubble. At once all are eager to sell, no one wanting to buy; and this sudden expansion of supply and contraction of demand causes a falling-off of prices, more rapid probably than the rise has been. These changes all take place, not because anything has happened to money, but because something has happened to people or to goods.

Take another illustration. If throughout a period of some length, say between 1850 and 1890, technical methods generally undergo a rapid improvement so that the costs of producing large numbers of commodities are much reduced, there naturally follows a decline in the prices of these commodities so great as to lower markedly the average, or general, price level. But such a lowering of the general price level could not properly be conceived as a real or absolute advance in money. In a very natural sense of the terms it is not a

change in the value of money at all, but rather a change in the value of goods.

So much for relative changes. In a study of money, however, it is of course not the relative changes, but the absolute changes which are really germane. Our reference to changes in the general price level have been made merely to guard against the danger of confusing them with genuine changes in the value of money. We turn now, therefore, to the real task of our present chapter, the analysis of these genuine, absolute changes.

**Quantity Theory.**—The principle governing the value of money which is looked on by the majority of economists as most truly fundamental is known as the quantity theory or principle.

**Principle I.** *The value of money in any country tends to vary inversely as the quantity of money in that country.*

**The Proof.**—The argument for the quantity theory runs somewhat as follows: If the quantity of money increases, people in general will have more to spend, will, therefore, *demand more goods.* But, if people demand more goods, no corresponding increase in such goods being provided for in the hypothesis, *prices in general are certain to rise.* Finally, such a rise in general prices is the same thing as a fall in the value of money. An analogous argument shows that a diminution in the quantity of money must tend to raise its value. Thus, if the quantity of money diminishes, people will have less money to spend, will, therefore, demand fewer goods, and so prices will fall; that is, the value of money will rise.

**Confirmed in Experience.**—This argument, though an *a priori* one, has at times been strikingly confirmed in experience. Thus, in a community which contains only a few thousand inhabitants there may occur a great gold discovery, producing, in a few months, bullion to the value of hundreds of thousands of dollars. As this bullion can be almost instantly turned into money or its equivalent bank credit, the money demand for all sorts of goods will at once greatly expand. In the output of goods, on the contrary, there will be no

corresponding increase. Consequently, the prices of goods in general show a rapid rise. And, since this rise is caused by the increase of money or its cheapening (in cost) or both, it constitutes a real or absolute fall in the value of money. In gold producing districts, such as California, Australia, and the Klondike, the new gold was generally used as money at once, in its bullion form, without waiting for coinage. The eager spending of this new metal to buy the necessaries and luxuries which the hitherto poor miners craved, naturally led to a swift advance of almost all prices, that is, a swift fall in gold.

**Application to Groups of Countries.**—The application of the principle in a small community is thus easily shown; but does it apply as well to an entire country, or to a whole group of countries? In such a country, or group of countries, *will the value of money tend to vary inversely as the total quantity of money?* The *a priori* argument is, of course, still valid. An addition of 200 million dollars' worth of gold to the world's stock must surely tend to modify the gold, or money, demand for all goods other than gold, and so to modify the value of gold as measured in those goods. The new gold, or much of it, will be coined and pass into the monetary stock of the world; this will mean a corresponding enlargement of the ultimate reserves to which gold money is mainly relegated; and this enlargement in turn will lead to an expansion of bank credit, and so of general purchasing power. As a result, buyers will find it easier to get possession of purchasing power. If they are already disposed, on other grounds, to go into the market as buyers of wheat, cotton, machinery, etc., the increased control of buying power will increase the demand for those goods. Finally, the increased demand will tend to raise the prices of those goods or, in other words, to lower the value of gold.

Nevertheless, in a large country or in a group of countries the complete working out of this process cannot be looked for with anything like the same degree of confidence as in a limited district. That the value of money, even in such cases, *tends* to vary inversely as money quantity, assuming that sufficient emphasis is laid upon "tends," would seem almost indisputable. The norm toward which

the actual value of money gravitates, about which it varies under the influence of more temporary causes, is in large measure determined under the principle noted. Nevertheless, this doctrine requires much qualification. Historical and statistical studies have seriously undermined it, and not a few economists have been tempted to reject it altogether. In the opinion of the writer, the doctrine contains a basis of truth which is of prime importance. But the limitations to which it is subject in actual experience and which seem at times to reduce its practical significance almost to nothing, must be clearly understood.

**Limitations.**—First, so far as gold, the standard money, is concerned, the quantity in existence changes relatively so little in a year, or even in a long series of years, that, however true the theory might be, we should have great difficulty in establishing a satisfactory proof of it. In the case of many commodities, as for example wheat, the output of a year constitutes almost the entire stock for that year, and a doubling of the output means almost a doubling of stock. But not so with gold. Its physical imperishability, its very high specific value, and its technical treatment as money make it, economically considered, immortal. It is almost never consumed in the sense of being irrevocably withdrawn from the market. The untold accumulations of the centuries are in large measure available to meet the needs of today. In consequence, an increase or decrease in the output does not cause anything like a corresponding increase or decrease in the stock.

Another limitation, or set of limitations, upon the quantity theory grows out of the fact that in any modern monetary system, purchasing power, stated in terms of money, is not rigidly fixed by the quantity of money, but is almost indefinitely elastic. The whole point of the theory, as we have seen, lies in the assumption that if people have more money they will demand more goods, and that if they have less money they will demand less goods. It is easy, however, to show that many causes interfere with the prompt and effective working out of this process.

First, a small quantity of money, frequently turned over, will demand as much goods as a large quantity of money circulating

slowly. Money demands goods every time it is spent or offered in exchange; and when it is not being offered in exchange it is not demanding goods. Hence, as the saying is, the nimble sixpence may do the work of the slow shilling. In a word, rapidity of circulation may neutralize any tendency to a rise in value caused by scarcity of money, and slowness of circulation may neutralize any tendency to a fall in value caused by an abundance of money.

In the second place, under modern conditions the monetary stock has a degree of elasticity sufficiently high to neutralize, at least temporarily, changes in quantity. Only a small proportion of the actual circulating medium, the buying power in money form, consists of gold. A much greater part consists of bank notes, secured by small reserves of gold, and the issues of these may be expanded or contracted almost at will.

But there is an even more important consideration. The general course of wholesale prices is largely determined in the great exchanges where wheat, cotton, iron, petroleum, and so on are dealt in. Now, the exchange medium employed at these markets is not money in the narrow sense, but rather credit. Cotton, wheat, and iron are paid for with checks, and these checks practically never lead to a call for cash—the transactions are carried on almost entirely with deposit currency. But this sort of circulating medium expands or contracts virtually as it is needed, expands or contracts, indeed, with the expansion or contraction of the very business which employs it. Just because a dealer has bought 50,000 bushels of wheat, he can induce his banker to manufacture on his behalf say $30,000 in credit money, secured by that wheat, and ready to be used in buying more wheat. The new wheat, in turn, can be made the basis of additional bank credit, which again can be used in buying still more wheat.

There must always exist, to be sure, a basis of real money; every new bank loan must be secured by a certain reserve of standard coin or metal; but the possible expansion of the loan is several times as great as the necessary addition to the reserve. Hence if business prospects look favorable both to the would-be borrower and the bank, the purchasing medium can be and will be expanded almost indefinitely, with only the slightest dependence on the stock of money existing at the time. On the other hand, if prospects are not favor-

able, the buying medium, deposit currency, will not expand, no matter how large the reserves of real money. Immediately it appears that the quantity of money has little to do with determining the demand for goods.

Nevertheless, with all these qualifications, the quantity theory, as a statement of a general tendency, remains unshakable. In the long run, the general level of prices—the value of money—must be influenced by the quantity of money, particularly the quantity of standard money.

**Forces Acting through Quantity Principle.**—If the value of money varies inversely as the quantity, we should need little argument to establish certain facts concerning the effect upon value of various forces that influence the quantity. Since the output of money metal increases the stock, it must tend to diminish the value of money. Since a high cost of production tends to diminish output, and a low cost of production to increase output, then the one must tend to raise and the other to lower value—although, due to the highly speculative character of mining, this cause does not operate with anything like the promptness or certainty characteristic of many other industries. Finally, since the increase or decrease of money metal used in the arts must effect opposite changes in the amount of such metal available for use as money, they necessarily tend to increase or decrease the value of money.

The facts just mentioned may all be briefly stated in a corollary of Principle I.

> **Corollary.** *The value of money tends to vary inversely as the quantity of standard money available, and hence to vary inversely as the output of metal, directly as the cost, and directly as the quantity used in the arts.*

**Conscious Adjustment Changes.**—While the quantity principle is the basal doctrine for money value, special circumstances may arise in which one or two other principles have greater influence. Thus, the value of the substance used for the monetary standard may at times be determined quite independently of the quantity of money,

and then the value of money be fixed in accordance with the value of this ultimate standard substance. Whenever the value of the ultimate standard changes, as measured in at least one important commodity, then the value of the money dependent on that standard will also change. Business men of experience, alert and shrewd, will certainly refuse to sell goods at the old prices for money which, as measured in an altered ultimate standard, has fallen twenty or thirty per cent. And if they proceed to raise prices, this will constitute a change in the value of money by adjustment to a changed ultimate standard.

Suppose the standard of a country is a metal which has the status of a mere commodity in some great world market where the country in question maintains intimate trade relations. Thus before 1893, India had a silver standard. At that time, as now, silver was in London and other European centers a mere commodity, bought and sold like cotton or wheat. Naturally, it showed many fluctuations in price; and every marked fluctuation was followed by an opposite change in Indian prices, particularly of imported goods. When silver fell, Indian prices rose; when silver rose, Indian prices fell,—in a word, the value of Indian money was readjusted to variations in the world price of silver. This result was, of course, the natural one to expect. If silver fell, the value of Indian silver rupees, as measured in English pence, would fall; it would take more of them to buy the goods imported from Europe; and so the dealer would have to recoup himself by charging more for the goods. But, if dealers in imported goods charged more, dealers in domestic goods would in the long run have to do the same, or else suffer a loss. Finally, if dealers in general charged more for their goods, laborers would presently have to begin charging more for their services. A rise in prices begun in the import trade would thus eventually be extended throughout all business relations. And this is merely to say that the value of the rupee was being adjusted to the value of silver.

A second illustration: Suppose the standard money consists of irredeemable notes. Changes in the value of this money, as measured in the metal which was formerly standard, can be followed in the market price of that metal. Thus, during the American Civil War,

gold went out of circulation and was speculated in on the open market just as cotton, wheat, and copper are now. Every day, every hour, its price, measured in greenbacks, the standard money which had displaced it, rose or fell. But this, of course, is the same as saying that the value of greenbacks, measured in gold, moved in the opposite direction,—fell or rose. Naturally, every seller of goods would note these changes in the greenback, since it was the measuring unit of the value of the goods he was selling. Naturally, too, he would sooner or later make some effort to guard himself against loss from the fall in greenback values. Doubtless he would not try to readjust his prices to every change, but we can be quite sure that great declines, especially if long continued, would lead to a remarking of goods, a readjustment of prices to correspond to the decline in standard money.

As a formal statement of the points here illustrated, we have the following:

> **Principle II.** *Whenever the conditions are such that it is possible for the general public to have fairly conclusive evidence that a change in the value of the ultimate standard, as measured in at least one important commodity, has taken place, there will almost certainly follow, more or less rapidly, a direct readjustment of the value of money (and so of general prices) to the changed ultimate standard.*

**Credit Fluctuation Changes.**—A third principle concerns the value of irredeemable paper money as affected by political or commercial uncertainty. Irredeemable paper money is merely credit money which has hitherto been redeemed freely on demand in the standard money, but on which, for the time being, redemption has been suspended. The type we have in mind is issued by the public treasury or a central bank closely allied to the treasury, for example, the Bank of England. When payment on such money has been suspended, it inevitably becomes the standard money as shown on page 398. Now, in normal times, when no public crises intervene, the value of money of this sort may remain at about the same point for months or even years. That point will be below the value of the

standard displaced, but not necessarily much below, depending on the quantity out, the skill with which it is managed, etc. But if any period is marked by uncertainty in public and commercial affairs, for example, if the nation is engaged in a war characterized by greatly fluctuating fortunes, anxiety will naturally spread abroad lest the government will in greater or less degree repudiate its obligations. This failure of the public confidence will of course react on the value of the notes as measured in the old standard, causing that value to show extraordinary fluctuations even within the limits of a single day.[1] But this will not be the end of the matter. As brought out in discussing Principle II, dealers will more or less fully adjust their prices to the larger changes in the value of the irredeemable paper as measured in the old standard. The final result, then, will be that the value of such money, as measured in goods in general, will vary in a rough way with the degree of the public confidence in the certainty and proximity of its redemption. The following statement will formulate the conclusions of our argument.

**Principle III.** *During a period marked by much uncertainty, either political or commercial, the value of irredeemable paper money is chiefly determined by public confidence in its ultimate redemption, varying directly as said public confidence.*

### Miscellaneous Problems under Money

1. "I can't understand what people mean when they say that money has risen in value since 1873. Money is by common consent the measure of the values of all other things; and so *its own value must be fixed,—cannot rise or fall.*"—A Gold Advocate in 1896.

Explain his mistake.

2. Why would changes in the total quantity of money in the United States between 1862 and 1879 naturally have had more influence on its value than equal changes would have had between 1850 and 1860?

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[1] As seen in opposite changes in the value of the old standard metal, quoted in terms of the irredeemable note.

3. Extract from a speech in the campaign of 1896: "If any man in this community would offer to buy all the eggs at 25 cents a dozen and was able to make good the offer, nobody would sell eggs for less, no matter what the cost of production, whether one cent or five cents a dozen. So with silver. Free coinage *would establish the market price of silver* at $1.29, and nobody would sell for a cent less."

There is doubtless a sense in which the italicized claim is true but this is not the sense which was intended. The speaker meant that silver would rise to $1.29, as measured in the present dollar; so that there would be no repudiation of debts in adopting the free coinage of silver.

(a) Show that such a claim is not established by this argument.

(b) In what sense is the statement true?

4. "We have altogether too little money in the country ($2,600,000) not enough to pay the railway debt ($6,000,000), or even the debts of banks to depositors, let alone the business debts." Explain fallacy.

5. A few years ago Mexico had a silver standard. If at that time silver had risen in value, would the Mexican dollar have risen in value? Would it have risen in price? Would the price of silver bullion have risen?

6. In 1856 the monetary system of France was bimetallism at the ratio of 15.5 to 1. The market ratio at that date was about 15.3 to 1. What must have been the monetary standard? Prove.

7. In the panic of 1893, when in America money was so scarce that business men and bankers had to resort to all sorts of substitutes, such as due bills, New York drafts, deposit certificates, etc., an eminent American economist said in substance: "What do you think now? Was I not right in contending that the stock of money is altogether insufficient?"

Did the facts establish his contention?

8. Argument against Bryan in the campaign of 1896: "I can see how free coinage is going to increase the profits of the mine owners *by doubling the value of silver;* but I do not see how it is going to help the rest of us."

Explain the fallacy in the words italicized.

9. During the sixth decade of the XIX Century when France had bimetallism at a ratio of 15.5 to 1, though the market ratio was about 15.3 to 1, dealers to their surprise every now and then received silver five-franc pieces in payment for goods. Why should this have surprised them?

10. "Unless the government redeems all worn coins at their face value, a coinage in active use always shows a strong tendency to deterioration."

Explain why this is bound to be true.

11. "I object to our buying outside anything which we can produce at home; for this means just so much money lost from our coin circulation."

Show that this is unsound

12. About 1850, when the United States had bimetallism at a ratio of 16 to 1, there took place a considerable fall in the silver price of gold, so that the silver in an American silver dollar was worth 2 to 3 cents more than the gold in a gold dollar. In consequence, silver coins generally went out of circulation, only the much worn ones remaining.

Explain (a) why most went out and (b) why some stayed.

13. What is meant by saying that our mint ratio between gold and silver was 1 to 15.98?

14. "New York, Dec. 11, 1903. The banks gained from the interior this week $2,042,906."—Newspaper.

Was this normal?

15. "London, Oct. 3. One hundred and fifty thousand pounds sterling gold will be shipped tomorrow to New York." Was this normal?

# CHAPTER XXXVI

## THE PRESENT SYSTEM OF DISTRIBUTION

**The Problem of Distribution.**—In our very first attempt to describe the nature of the existing economic order, we emphasized the point that that order is one in which men *cooperate* in the processes through which they seek to satisfy their wants,—to make a living. That cooperation is, indeed, spontaneous, its working out automatic; nevertheless it is very real and covers by far the greater part of our economic activities. Economically, we constitute a vast organic complex into which the individual more or less skilfully fits himself, and from which he more or less successfully makes his living. Since we thus constitute a vast organism, it is natural to conceive the product income of us all as a totality, a social income which is broken up into the individual incomes of the members of society. Thus conceiving the income of us all, it is natural to inquire: What are the processes and principles under the operation of which the amounts of these individual incomes are determined? This, then, is the chief problem suggested by the term Distribution as the economist uses it; and we must now devote ourselves to its solution.

The above account of the nature of the problem which distribution, as a division of economic science, presents to us should make it clear that that problem is *not* concerned with the division of the product of *a given factory or mine or farm* among the persons who participate in the operation of such factory or mine or farm. Instead, our problem is concerned with the division of *the total product of the whole economic group* in which is found that factory or mine or farm,—as well as many other factories and mines and farms, and also many other industrial concerns,—among *all the members of the group*. Our problem stated in the former way is not a legitimate one,

for it implies that we may reasonably think of the sharing of the product of a single industrial concern as being determined independently of other concerns belonging to the same general economic group,—a notion which is surely quite untenable. If we insist on using the word "shares" in this connection at all, we must mean by it, in the case of all participants but the entrepreneur, the sum or sums of money which are paid each one in exchange for his particular service. But this, obviously, is determined by multiplying the price of a unit of such service by the number of units rendered. That is, the fundamental determinant of the share of each is a *price*. But it surely is evident by this time that prices are things which are *not fixed within the relations of a single concern,* but *over the industrial field as a whole.* What the chief engineer of a particular factory gets may be determined in almost entire independence of his contribution in that factory: from the standpoint of that factory, his wages may be an absolutely fixed quantum which the concern has to accept from the general market, and in accord with which they have to adjust their conduct of the business.

## I

### The Principal Kinds of Income

Looking at the matter in a very general way, it may be noted that shares in the general social income may be either (1) economic or (2) non-economic. The former are such as are obtained through economic relations, processes, for example, wages from the sale of labor. Non-economic shares are any outside the above, for example, shares obtained by theft, cheating, governmental corruption, gift, and so on. Some incomes can with more or less reason be assigned to either class. Thus, many of the great incomes obtained in America from the exploitation of natural resources, such as lumber, copper, and oil, which we usually classify under one of the regular economic shares—profits—may also be conceived as in a sense non-economic, in that they often have their origin in the foolish or corrupt munificence of government. Naturally, the study of incomes undertaken here will be concerned with those which can properly be called economic.

The chief economic incomes or economic shares in the social income are wages, interest, profits, and rent. These terms need little definition. Wages are a form of income which men receive in return for personal services—labor. Interest is the capitalist's remuneration for "carrying" the reserves of the community, supplying the service of waiting, and takes its purest form in loans where *risks* are practically eliminated. Profits, on the other hand, are the remuneration paid especially for *taking the risks* or, better, for *taking the responsibility of ownership*. Rent is the hire paid for the use of unproducible or indestructible elements in land.

Again, we should note as a general point that economic incomes are of two distinct classes—*personal* incomes and *property* incomes. Personal incomes, which men receive in exchange for personal services, may in practically all cases be brought under the category of wages, though in ordinary speech remuneration for the higher forms of personal service is usually called salary. Property incomes, those which men receive in exchange for services given by the property they own, fall into three classes, *rent, interest,* and *profits.*

**Functional Distribution.**—The above account of what we have called the economic shares suggests that distribution under the present order is primarily a *functional* process. Each member of society receives a share which is supposed to represent the effective social importance of the function which he performs directly or through some factor which society authorizes him to own. Such a system of distribution is not logically necessary. We could conceive an order in which shares were determined independently of function, for example, one in which all shares were equal, as is commonly advocated for communism. On such a plan, it would still be necessary to try to ascertain the effective social importance of each function, in order to have the information needed to enable us wisely to utilize our stock of the various primary factors. But that knowledge would not influence the community in distributing the social income. The present order, however, makes income correspond to function. This view of the matter explains how it is that the economist, when studying distribution, seems to busy himself almost entirely with what is

often called "functional distribution," the allocation of the social income to the several different functions which had to be performed in order to produce that income.

**Personal Distribution.**—In contrast to functional distribution as thus described, we have "personal distribution," meaning the allocation of shares to actual, concrete persons. Manifestly, these two distributions are not necessarily identical; since any person may be in receipt of more than one functional share. Still the process of explaining incomes compounded of two or more functional shares offers no difficulty, since such incomes are mere aggregates of the functional shares entering into them. Accordingly, the economist seldom feels called on to go much beyond mere functional distribution.

### Illustrative Problems

1. Mr. Crane puts $3,000 into a grocery business and works himself in the store from morning till night. His net return from the business is $1,500.

Make an imaginary distribution of this income into the several economic shares which are probably involved.

2. My friend has eight houses and lots in Ann Arbor which he rents, getting for each, let us say, $360 a year. Try to break up this sum into the different elements which probably enter into it.

3. At a certain inland resort rowboats are let at $1.50 per day. Enumerate the different elements entering into this sum.

4. "Production is, so to speak, a synthesis; distribution, an analysis." Explain what seems to be meant.

## II

## General Character of the Process Determining the Regular Economic Shares

**Distribution an Exchange Process.**—Generally speaking, the process whereby these regular economic incomes are determined is simply the *price-determining* process, which we have discussed at length. The correctness of this statement may be seen from a mere preliminary examination of the economic incomes which will

show that the source of each is in reality nothing more than the *price* of something. Thus wages of all sorts—whether those of a mechanic in the automobile factory, for example, or those of a salesman, advertising writer, or general manager—are nothing but the prices of labor services brought by the laborer to market. Interest also is plainly a price; for, as we have conceived it, the lender makes a sale of the service of waiting. Rent is the price paid for the use of land unmodified, or modified only by improvements which are indestructible. The case of profits, though on the surface less evident, is at bottom not materially different. The entrepreneur supplies the service of responsibility-taking. From the very nature of this service, *it cannot be sold directly;* but it is *virtually* sold, in that the entrepreneur unites this service with the services which he buys from other agents in the productive process, and *sells the total resultant* on the general market. Profits, therefore, are in effect a price received for a service supplied.

Another less direct but not unimportant sense in which incomes are determined through exchange processes should perhaps be mentioned in this place. The immediate income which most of us receive is of course an income of money or its equivalent. But to *realize* this income, to obtain gratification for our wants, we have to turn the money into commodities or services—bread to eat, clothes to wear, rides on the train, etc. Now, obviously, the amount of such goods which we enjoy must depend in large measure on the money prices of those goods. But this, in turn, is a matter of exchange. Hence the amount of goods we can enjoy—our real income—depends, again, on the processes of exchange.

But we need not be content with saying that the sources of the economic incomes are the prices of services, economic goods, which the income-receiver sells, and that those incomes are determined, through exchange processes, by the laws of price. We can be more specific. We can affirm that the particular services in question, the services of labor, land, capital, and responsibility-taking, belong to the class of economic goods which were earlier designated primary factors or cost-goods. A primary factor, as we remember, is one behind which economic analysis cannot reach, which can be traced to no more ultimate source; and we should be able to see with little

effort that the factors under discussion answer completely to this description.

The services of land are obviously primary factors, for they flow without man's assistance from a source which man has not made. Labor services again, for which wages are paid, flow from an unproducible source—labor power. For, although labor power is, literally speaking, produced and continually reproduced by the natural propagation of the human species, it is seldom, except under a slave régime, brought into existence primarily for market purposes; it occurs only as an incident to living and precedes the origination of economic motives; and we may accordingly look upon labor as one of the ultimate things in our analysis, something behind which we cannot go. An equally clear case can be made out for waiting power and responsibility-taking. These factors are indeed supplied by men on their own free choice, and, unlike labor power, are supplied from preconceived motives of an economic sort; but they are preceded by no factors of a strictly economic kind—in reaching them we have reached a point beyond which economic analysis cannot penetrate.

We have seen that the services of labor, land, capital, and responsibility-taking are primary cost-goods. In consequence, wages, rent, interest, and profits, being the prices of these different services, are prices of primary cost-goods. Naturally, then, the particular law of price operative in determining these distributive shares is the one which determines the prices of primary cost-goods. But the principle governing the prices of such goods has already been brought out in Chapters XXIX and XXX. It follows that the principle there set forth is in essence the principle which in the long run governs the regular economic incomes, wages, rent, interest, and profits. Formulated as a principle governing distribution, it may be stated as follows:

> **Principle.** *Every economic income tends to approximate that quantity of goods which constitutes an expression of the marginal significance to people at large of the actual output—when competition is free, the natural output—of the type of service rendered by the receiver of said income,*

*and which also, in the case of free competition, constitutes an expression of the net marginal disutility involved in furnishing said type of service.*

## III

### Explanatory Comments

(1) The principle of distribution above laid down is manifestly a *compound* one, in that it asserts the coincidence of income both with the marginal *significance* of the service rendered, and the marginal *disutility of rendering it,* provided there is such a disutility. The full title of the principle, therefore, would naturally be the "significance-disutility principle." It is possible, however, to treat the two parts as separate principles; and this is perhaps desirable at times, because the first is accepted by some economists who would demur at the second.

At any rate, the first part of the principle, which is much the more important and oftener the subject of reference, will certainly require a separate title of its own. We shall therefore frequently allude to the "significance principle," which affirms that the price of any primary factor tends to be such as will express its marginal significance; or, in other words, that any economic income tends to be such as will express the marginal significance to people at large of the service rendered by the primary factor in question. Another designation occasionally used is the "service value principle," the principle that each person tends to get an income which represents the value of his service or contribution.

(2) Our principle affirms that every economic income tends to *approximate* (not equal) that quantity of goods which expresses the marginal significance attaching to the service rendered. If the marginal significance of a piece of land, for example, is $500, the rent paid for that land will approximate $500, but not necessarily equal it. If the labor of carpenters has a marginal significance of $5.00 per day, the wages of this class of workmen will tend to be $5.00 per day, but not necessarily equal to that figure. The reason for this statement will be evident on a moment's consideration of the principles of price as already presented.

We remember that there are four limits of price determination, the marginal demand price and the first extra-marginal supply price, above; and the marginal supply price and the first extra-marginal demand price, below. Since it is perfectly possible that there should be a considerable interval between these limiting prices, actual price may vary over a considerable range. This statement manifestly applies to the primary factors from which incomes are derived, just as much as to other economic goods.

(3) The principle teaches that each person tends to get an income which represents the *marginal* significance of his services. A given employer might be willing to pay $8 a day for carpenter service. But, taking employers all together, those who are least desirous of having carpenter work done find the service is worth to them only $5.00 a day. Five dollars, in other words, expresses the marginal significance of that type of service. The employer who is willing to pay $8 will therefore need to pay no more than $5.00 per day. This is, of course, the same principle that applies in the purchase of bread, meat, coffee, and other ordinary commodities. Whether ethically right or wrong, there is nothing peculiar about it.

(4) In the second part of our principle, it was said that every economic income tends to be one which constitutes an expression of the *net* marginal disutility of furnishing the type of service. The word "net" is introduced to provide for the following feature. The act of supplying certain services may involve advantages as well as disutilities; university teaching, for example, gives men opportunity for the pursuit of scientific investigation, and practicing law gives men standing in the opinion of their fellows. Now, evidently, in cases of this sort, the reward received by the man who supplies the service does not need to be large enough to express the full disutility of his task, but only large enough to express that disutility minus the incidental advantages. An artist, scientist, or missionary, however great his labor, may find such pleasure in the exercise of his talents or in contemplating the result he hopes to achieve, that he will consider himself well paid if he receives only the barest living.

## Illustrative Problems

1. One eminent economist heads the chapters in which he treats Distribution with the title Exchange-Distribution. Argue that such a heading is legitimate.

2. "The economist commonly concerns himself too much with *functional* distribution, neglecting *personal* distribution." What is the point of this distinction? Argue that most that might be said under the heading of personal distribution is too evident to need much elaboration.

3. "Orthodox economics teaches that the natural laws regulating distribution assign to each owner of a factor of production that portion of the product which is economically necessary to evoke and maintain the efficient operation of his factor, and nothing more."

Assuming that the doctrine taught in this text is substantially that of orthodox economics, show that orthodox economics leaves room for the notion that the owner of a given factor in production might get something more than the amount "necessary to evoke and maintain the efficient operation of his factor."

4. "This contractor will lose $50,000 if his building is not completed September 1. Bricklayers are worth $50 a day to him, yet he can get all he needs for $8 a day. How can you say that each of us tends to get an income which expresses the marginal significance of his service?" Point out the error.

# CHAPTER XXXVII

## THE GENERAL PRINCIPLE OF DISTRIBUTION: COROLLARIES

**Not Precisely Realized.**—In affirming the existence of the general principle of distribution which was presented in the preceding chapter, it was not intended to claim that that principle is precisely realized in the phenomena of actual life. The lack of such realization appears in both aspects of the principle but is especially notable on its significance side. Few contributors to production receive sums which exactly correspond to their contributions. Some get much more; a far larger number get less. But, in this respect, the significance principle is not materially different from any other economic law. Those hypotheses which we assume as the starting point of all economic reasoning, absence of force, fraud, favoritism, monopoly, and other conditions interfering with freedom of competition and contract—are far from being realized. Further, were none of these manifestly abnormal elements present, we should still have human ignorance, folly, and inertia, to hinder any precise realization of the principle.

**Sufficiently Realized to Be Important.**—But, while this and all other principles of economic science are nowhere rigidly operative, economic phenomena do, in a broad way, come under their control. This statement is more conspicuously true of some other principles than of the one before us, but it applies to this one also. Such being the case, it follows that our significance principle should not and cannot with safety be ignored *in affairs of the practical world.* It frequently is ignored, as we know; for not a few well-meant but ill-advised reforms run directly counter to it. But the outcome of such reforms, just because they neglect the principle, is invariably a partial and sometimes a complete failure. To bring out the connec-

tion between such failures and our principle, we will set down a few of its more important applications in the shape of corollaries. Most of these concern the *significance* side of our principle; but the last relates to its *disutility* aspect.

> **Corollary 1.** *Attempts to fix arbitrarily the amount of any economic share whether by governmental or private action without changing the demand for, or the supply of, the particular type of service involved can succeed only within the narrowest limits.*

Illustrations of such attempts are found in the Statute of Laborers (1351) designed to keep wages at the old level in spite of the diminution of laborers through the black death and, more recently, in minimum wage laws and usury laws.

All these measures, we should note, are attempts arbitrarily to regulate the value of something *without changing demand or supply.* It is at times possible arbitrarily to change prices, but only on condition that one accepts the consequences in the shape of changed demand or supply. Thus, a monopolist may arbitrarily raise his price, but only on condition that he reconciles himself to smaller sales. So the workmen in a particular trade, if very strongly organized, may put up the wages of their trade, but at the same time they must be content with fewer jobs. So, again, if government insists on establishing a maximum price for some producible service below the cost of supplying that service, it will have to be satisfied with seeing the supply of the service fall off. If in any particular case the action taken to fix prices does not alter demand and supply conditions, it can, as the corollary affirms, seldom succeed at all.

The corollary, as stated, really contains two elements: (1) An admission that the shares can be, in some degree, fixed arbitrarily by legislation, and (2) a claim that this is possible only within very narrow limits.

Let us begin with the first point.

**Some Fixing of Shares Possible.**—(1) A share can always be arbitrarily fixed *within* the limits set by the significance principle, as

against any departure to a point *outside* those limits caused by a failure of competition or the intervention of illegitimate elements. For example, rent is not seldom driven *above* marginal significance because of the ignorance or inertia of tenants; and government can then, without colliding with regular economic forces, bring it down to the proper level. (2) It is probable that there is nearly always some leeway between the *marginal* significance and the *first extra-marginal one,* in which case, our principle fixes, not the precise amount of each share, but *only the limits* within which it may range. But one point within these limits will reconcile supply and demand as well as another. Hence, within these limits, legislation can arbitrarily fix on one particular point rather than another, without coming into collision with regular economic forces. For example, if wages anywhere from $1.20 to $1.40 would reconcile demand and supply, the law might fix them at $1.40, and not contravene our principle at all. (3) It is admitted that the prices of labor services or capital services or land services can be fixed at points somewhat *outside* the limits set by the significance principle because of the inertia or weakness of buyers or sellers of those services. But this being true, it is surely reasonable to claim that *government,* when public policy demands it, can take advantage of similar weaknesses consciously to fix prices somewhat outside the limits set by our principle.

**Limits of Such Fixing Narrow.**—Such arbitrary fixing of the economic shares is possible only within very narrow limits. (1) Law cannot long compel people to pay for anything *more,*—anyhow *much* more,—than it is worth to them. (2) Law cannot long hinder people from paying for anything *as much,*—anyhow *almost* as much,—as it is worth to the marginal buyer; for this is the only way to insure that buyers at or within the margin will get the goods, as against buyers outside the margin. (3) Law cannot long compel people to furnish anything for a price much below that which expresses to them the disutility incurred in furnishing that thing. (4) Law cannot long hinder people from taking a price for their service substantially as low as that one which expresses the disutility incurred in furnishing said service.

**Corollary 2.** *Broadly speaking, the share per unit of each class of producing agencies varies inversely as the size of that class.*

Abundant land makes rent low; abundant capital makes interest low; abundant labor makes wages low. This obviously results from the joint action of our significance principle and the law of diminishing marginal significance (page 305). Each productive agent tends to get an amount which expresses the significance of the contribution made by the marginal member of his class. But, since the larger his class the smaller will be the significance of the contribution made by the marginal member, therefore the larger his class the smaller the income which each member will get.

In saying this, as in stating any other scientific principle, we of course assume *continuity of conditions.* An increase in the volume of any factor would not necessarily lower the rate of return if accompanied by the introduction of new opportunities for employing that factor.

**Corollary 3.** *Broadly speaking, the share per unit of each class of producing agencies varies directly as the size of other classes which cooperate with it.*

Increasing the size of one class of producing agencies increases the share of the others. For example, if capital increases in volume, not only does the rate of return to capital tend to fall, it is equally true that the rate of return to labor and land also tends to rise. The argument should be easy to follow.

(1) According to the last corollary, the condition supposed *lowers the rate of return* to the changing factor. (2) Since the *total* going to said changing factor out of the product of earlier units of the combination is fixed by multiplying the number of units into the rate, said total will be *smaller* than before. (3) In consequence, the portion of the product of earlier units going to the other factors, being that product minus the total going to the changing factor, will be *larger* than before. Take a simple illustration: Ignoring capital, let us suppose that a certain piece of land will yield to one man's labor 14 bushels of wheat; to the labor of two men, 20 bushels; to

that of three men, 24 bushels. When, now, laborers are so few that land needs to be worked in the first stage only, the whole product, 14 bushels, will go to labor. When it becomes necessary to put on a second man, he will add only 6 bushels, therefore will get only 6 bushels, and *the first man also will get only 6 bushels,* thus giving the landlord 20 minus 12 or 8 bushels rent. So when a third man has to go on, his significance and so his share will be represented by 4 bushels; the shares of laborers 1 and 2 will fall to the same figure, and the total of the landlord will become 24 minus 12, or 12 bushels. Thus, increasing the number of laborers lowers their share and raises that of the landlord.

That *diminishing* the size of one class diminishes the shares of the others, may be shown merely by reversing the preceding arguments.

**Corollary 4.** *Increase of population in itself tends to lower all shares but rent, most of all common wages.*

This is really a sub-corollary from Corollaries 2 and 3. An increase in population means normally an increase in the size of all classes of producing agencies except land. Hence an increase in population would normally mean a diminution in the shares of all classes except those receiving rent. Further, this diminution would fall most heavily on wages for the reason that increase in population means a greater increase in labor power than in capital, that is, in the power to wait or assume the responsibilities of production.

In opposition to the teaching of this last corollary it is sometimes argued that increase in population does not lower wages for the reason that each person brings into the world capacity to *produce* as well as capacity to *consume.* He adds, therefore, to the supply of goods just as much as to the demand. This merely shows that there is not ordinarily any danger that the new laborer will be unable to get any wages at all. It does not show that he will be able to get as high wages as before. Since the stock of natural factors in production and the stock of capital are not increased by the incoming of the new laborers, therefore the marginal significance of labor, and with it the wages of labor, must tend to be lowered.

Again, it is sometimes argued that increase in population, in that it makes a larger market and so justifies the resort to extreme specialization, large-scale production, etc., really raises marginal significance rather than lowering it, and so raises the shares going to labor and capital. This is doubtless possible but not, in my opinion, probable. In most countries population has long since reached the size which would justify a resort to the most efficient methods. If a particular community is failing to take advantage of the possibilities of large-scale production because markets are too small to justify a resort to that method, this smallness of the markets is probably not due to lack of the population necessary to make a large market, but to the lack of those facilities for transportation and communication in general which are necessary to coalesce the different small markets into one large one.

**Corollary 5.** *Any cause which restricts competition among the persons who supply a particular type of service tends to increase the rate of income received by the said persons.*

It is of course a fact familiar to the student that producers in all lines are disposed to adopt measures to limit competition, each in his particular line. Monopoly in some form or degree is a condition of things which, consciously or unconsciously, almost everyone tries to see realized in his special field. Perhaps the entrepreneurs in some industry, for example, sugar production, form a trust, thus establishing a combination so wide-reaching as to approximate monopoly. Or perhaps the men engaged in building houses in a certain city form an agreement whereby they promise not to compete in the fullest sense against each other. Or perhaps the painters combine to restrict their numbers by refusing to take on more than a fixed number of apprentices at any one time. Now, it is doubtless hoped in each of these cases that the action described will increase the returns of the persons interested; the entrepreneurs in sugar, and the building contractors will get larger profits, and the workmen in the case of painting will get larger wages. Further, it is doubtless true that the result thus hoped for is largely realized. Such re-

strictions of competition do usually increase the incomes of the persons interested. The reasons are plain. Diminished competition means decreased output, therefore higher marginal significance, therefore higher price, for the service rendered.

The principle, as stated, says "rate of income" rather than simply "income" in order to provide for cases where restricting of output might increase the return per unit of service performed but not per person. Thus, the whole body of laborers might unite to keep, say, one-fifth of their number idle, hoping thereby to increase the total income of their class,[1] while in fact they *might* thereby lower the total though increasing the rate—that is, the income per unit of service or effort.

> **Corollary 6.** *Any cause which restricts competition among the persons who supply a particular sub-class of services tends to lower the incomes of the persons who supply related sub-classes of services.*

As we have seen, it is very common to try to limit the output of one's own type of service in order thereby to raise the price of it. It is less common, but by no means rare, to hear persons who have inaugurated this policy attempting to enlist the sympathy and support of others as if the public in general or producers in general, were to gain by it. That persons sometimes succeed in this attempt does not alter the facts of the case. Their position is, generally speaking, quite untenable. We may sympathize with their aims, may even be glad to suffer some loss in helping them to realize those aims; but we are bound to experience a loss—*the policy in question is against the immediate economic interests of all but the persons directly concerned.*

The explanation of this fact, in so far as it concerns related workers, should call for no elaboration. Restricting competition within any sub-class of productive agencies, say painting, drives the persons shut out of that sub-class into related sub-classes,—carpentering, masonry, etc.,—thereby increasing the size of said sub-classes.

[1] It probably can be shown that as a mere matter of economic theory this is a *possible* result. It does not, however, seem of sufficient importance to reward the effort.

As a consequence, under the working of Corollary 2, the share per unit of those classes is lowered.

Corollary 7. *Broadly speaking, improvements in method through discovery and invention tend more especially to increase interest and profits.*

Such improvements, by increasing opportunities for the employment of waiting and risk-taking, increase the marginal significance of those factors, and so fulfil the conditions of the principle. This is not to say that improvements in method bring no advantage to laborers; but any advantage the laborer gets comes *indirectly* in lowered prices and in the greater quantity of goods which lower prices enable him to buy.

As already noted, the disutility part of our principle is of much less importance than the significance part. Still it is not altogether negligible in practical affairs. In so far as any class of persons depend for their income on supplying some primary factor which involves a disutility, we cannot arbitrarily cut down that income without more or less interfering with the supply of that factor. This is the old story of killing the goose that lays the golden egg. One good reason for not interfering with the freely made price of a primary factor and the income derived from it is that only so can we be sure that the stock of said factor will be assigned to its proper tasks. But if the factor has a disutility cost, there is another reason for not interfering with its price and the income derived therefrom, namely, that, by pursuing such a policy, we are liable to cut down the stock or output of the factor. This point may be formally stated in the following corollary.

Corollary 8. *If the primary factor from which an income is derived has a disutility cost, all artificial attempts to reduce that income are likely to reduce the supply of said primary factor.*

## Illustrative Problems

1. Suppose that at a certain date, competition being free and general conditions normal, the rate of wages for ordinary labor is $1.50 per day; and suppose, further, that, under these conditions, the legislature passes a law forbidding anyone to pay or receive wages less than $5 per day. Do you believe that this would result in giving everyone wages of $5 per day? Why?

2. "The logic of their (the orthodox economists') teaching, has been that wages which were *determined by free bargaining* between capital and labor would be just or reasonable wages."

Point out wherein the above is incorrect, or at least inadequate, as a statement of the real teaching of the economists.

3. Quite soon after her entrance into the war, Great Britain undertook to raise a large revenue by the exceptionally heavy taxation of the industries especially connected with war, that is, the industries engaged in producing guns, ammunition, etc. What argument could be made against that policy?

# CHAPTER XXXVIII

## RENT

In Chapter XXXVI we presented the general principle under which the four economic shares in distribution are determined. In this and the three chapters following, we give a somewhat more detailed study to each of the shares taken separately. We begin with rent.

### I

### The Nature of Rent

As understood by the general public, the term rent commonly means the consideration paid for the use of any tangible object, such as a house, a horse, a boat, an automobile, or a piece of land. Economic usage is much narrower, for it includes, not hire in general, but only the hire of land. It does not include even the hire of buildings, fences, or other removable or impermanent improvements standing on the land. When trying to be very precise, indeed, it speaks of rent as derived from the original, indestructible elements only of land, excluding all improvements wrought by man, even those of the most permanent sort. As a matter of fact, this usage is not perfectly feasible for the reason that some improvements are so indestructible, so irremovable, so altogether permanent, that they become in effect inseparable parts of the natural thing itself. Thus a tile ditch laid in a field becomes once and for all a part of it; no one will ever take up the ditch, no one will need to give it more than an insignificant amount of repairs, and it will last indefinitely. Likewise the increased fertility of the land resulting from its drainage is a quality which, though originally created as an improvement, can never again by any probability be extirpated, so long as the land itself endures. In consequence, the common practice is to interpret

economic rent as paid, not only for unimproved land, but also for *land improved in the ways indicated.*

The difficulty which is usually met in the way just indicated, is by some writers met by refusing to distinguish the hire of land from that of other goods,—calling them all rents or hires. This practice has not become general, and, in my opinion, is of doubtful expediency. The chief reason is that, in connection with certain problems of value determination and particularly in connection with the incidence of taxes, strictly non-producible goods, fixed-supply goods, behave in a quite different way from ordinary producible goods, and *improved land behaves generally like the strictly non-producible goods.*

## II

## The Origin of Agricultural Rent

**Rent Originates Like Any Price.**—Rent is a price—the price of the services given off by a piece of land during a given period of time. It follows that the most natural way to explain the origin of rent is that which is used in explaining other similar cases of price. Any appropriable thing will have a price, provided the demand for that thing at a price above zero is as great as the supply, while the demand at zero is greater than supply. Such a situation compels those who succeed in getting the thing in question to bid the price above zero. That situation commonly exists in the case of the services of land which is superior in respect to fertility or location. This is sufficient to give such services a price, and, therefore, is sufficient to explain the existence of rent.

**Special Explanation: Surplus Theory.**—But, while the existence of rent does not necessarily call for any explanation other than the one commonly given for the existence of price in other cases, it is customary, especially in the case of agricultural rent, to set forth some more specific and elaborate theory. Such theories are not to be conceived as inconsistent with the explanation of rent just given, but rather as explanations which go *back* a little further or *in* a little deeper,—explanations which attempt to show the *process* whereby the conditions indicated come to be fulfilled. The particular

theory which most commends itself to the present writer may be called the surplus theory.

### First Hypothesis

In explaining this theory, we will begin with the hypothesis that all the land is of one grade, and that its productive capacity is absolutely fixed—with just the right expenditure of labor, waiting, etc., it can produce a certain amount of product, less expenditure will produce nothing, more expenditure will add nothing. Such a hypothesis is, of course, in the highest degree unreal, but it will serve best in bringing to light *the causation process* through which rent comes into existence. At the outset, then, we take the small isolated island of classical convention. That island, we will suppose, contains just 1,000 acres of land of the same grade of fertility and the same degree of accessibility; the sole agricultural product wanted is wheat,[1] each acre of land will yield to the proper expenditure just 20 bushels of wheat, no more and no less; and the cost of the labor, waiting, and other factors necessary to produce these 20 bushels—not including, however, the services of land—is $6 or 30 cents per bushel.

Starting from this hypothesis, what condition or conditions will be necessary to bring rent into existence? In the first place, it is certain that this result cannot be reached, *rent cannot exist, so long as the demand for wheat at every price higher than 30 cents—even one of only 31 cents—is less than 20,000 bushels.* The best way to demonstrate this, perhaps, is to make the contrary supposition, that, through some process or other, rent did actually come to exist in spite of the fact that demand at 31 cents was less than 20,000 bushels; and then to show that this rent would inevitably be eliminated through the spontaneous working of economic forces.

Thus, let us suppose that, though the demand for wheat at 31 cents is only 19,900 bushels, there has actually appeared on each acre in use a rent of 20 cents per acre, one cent for each bushel. Since, under this supposition, the farmer's outlay for each bushel amounts to just 31 cents, 30 for other costs and 1 for rent, the actual price must be at least at high as 31 cents, else production would not go on

[1] Or wheat will be taken to represent agricultural products in general.

at all. But an actual price of 31 cents means that the effective demand will be only 19,900 bushels. As a result, only 995 out of the 1,000 acres of land will be wanted, since only that many are needed to raise the 19,900 bushels. But this fact will make 5 acres superfluous; and the competition of these five acres for the 20 cents rent *will reduce that rent to zero.* Thus, the existence of rent is not possible so long as the demand for wheat at every price above costs other than rent is not as great as the total possible output.[2]

We have seen that, under our present hypothesis, rent could not exist so long as the demand for wheat at some price above 30 cents, say 31 cents, had not come to be as great as 20,000 bushels, the total capacity of the land. The complementary proposition, that rent would begin to exist as soon as this condition was fulfilled, provided that, in addition, the demand at 30 cents were greater than 20,000 bushels—this proposition is easily established. As soon as demand had become equal to 20,000 bushels at 31 cents, while greater at 30 cents, the buyers who were ready to pay 31 cents would have to bid the price up to that figure in order to exclude the excess of demand, thus establishing a price of 31 cents. But, at this price, producers would get a surplus of 1 cent on each bushel or 20 cents on each acre; and, since prior to the increase in demand, the producers of wheat could afford to supply it at 30 cents, this surplus of 20 cents per acre would invite competition of producers from other industries; some part of the 20-cent surplus would be offered to landowners for the right to use the land; and reciprocal bidding between possible tenants would go on till the whole surplus had been turned over to the landlord, or assured to him if he were his own tenant.[3]

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[2] A theoretic complication is possible in which, though the demand at the above-cost price is not as great as the possible output, the demand at cost is *greater* than output. This case would be one of unstable equilibrium. Price must rise for a moment above cost in order to throw out a part of demand, and, in doing so, it would bring rent into existence. But this could be true only for the moment. The fact that demand fell *below* capacity as soon as price rose above cost would again bring down price and so annihilate rent. When this had happened, the excess of demand at cost might again send price up temporarily, creating rent temporarily, which would again be eliminated as before. And so this alternation might go on indefinitely.

[3] The existence of rent does not require that a payment should be made from one person to another. The *surplus* over cost which goes to, or stays with, the landowner *is itself the rent.*

**Summary.**—The above explanation of rent under our present very unreal hypothesis may advantageously be summarized before leaving it; for it contains the essence of the explanation of rent under any set of conditions. The following will answer: When the demand for wheat at a price above cost has become as great as the capacity of the land, and demand at a price equal to cost has become greater than the capacity of the land, the actual price of wheat will rise above cost, this will create a surplus, and the competition of possible tenants will put this surplus into the hands of the landowner, if tenant and landowner are separate persons, and fix it in the hands of the landowner, if these two are united in the same person.

Putting the essence of the matter in still more compressed form, we may say that rent, at least under our present hypothesis, would come into existence when and *because the possible output of the land proved inadequate to satisfy demand except at some price higher than cost of production.*

### Illustrative Problems

1. On the basis of the hypothesis just used, what would rent per acre be under each of the following demand schedules for wheat? (a) 18,000 bushels at 36 cents; 19,000 bushels at 35 cents; 20,000 at 34 cents; 21,000 at 33 cents; 22,000 at 32 cents; and so on? (b) 18,000 at 39 cents; 19,000 at 38 cents; 20,000 at 37 cents; 21,000 at 36 cents; and so on?

2. In the earlier days of economic study it was thought by some very able men that the existence of rent proves that agriculture is an especially productive kind of industry. When the true explanation of rent had been given, a famous economist declared that rent is due, not to the bountifulness, but to the niggardliness of nature. Defend that proposition.

### Second Hypothesis

We have seen how rent originates in the very simple, but very unreal, case furnished by our first hypothesis. Let us now change the hypothesis so as to bring it a step nearer to the facts of life. Let us suppose that the wheat land of our island is not all of one grade, there being only 100 acres of the grade which yields 20 bushels

per acre at a cost of 30 cents, while the rest is distributed into 3 parcels, one of 200 acres which will produce each 17 bushels at a cost per bushel of 35 cents; another of 300 acres which will produce each 15 bushels at a cost per bushel of 40 cents; and a third of 400 acres which will produce each 13⅓ bushels at a cost per bushel of 45 cents. In each case, greater expenditure would make no increase in output, while any smaller expenditure would produce no output at all. We will designate these different grades, 30-cent land, 35-cent land, 40-cent land, and 45-cent land, respectively.

When, now, would rent appear under these new conditions? First, it is quite certain that there could be no rent so long as the demand for wheat at any price above cost on the 30-cent land has *not* become equal to the possible output of that land, 2,000 bushels. This proposition is plainly analogous to the first one laid down under the previous hypothesis, though this time the crucial figure in demand is 2,000 bushels, the possible output of the *best* land, instead of 20,000, the possible output of *all* the land under the previous hypothesis. In substance, the argument for this proposition is the same as that used before. Any rent which might temporarily appear under the conditions given would soon be reduced to zero by the spontaneous working of economic forces. The paying of that rent would necessitate an actual price for wheat of 31 cents; that price would reduce actual demand to less than the possible output of the 30-cent land; this reduction in demand would throw out of cultivation some of said 30-cent land; and the competition of the thrown-out acres would reduce rent to zero.

Again, the conditions under which rent will appear and persist are substantially the same as before. Just as soon as the demand for wheat at some price higher than cost on the best land, say 31 cents, had become equal to the total possible output on that land, 2,000 bushels, while demand at the cost price, 30 cents, had become greater than 2,000 bushels, rent would begin to exist on the best land. For, under this condition, the price of wheat would necessarily become 31 cents; this would give a surplus over cost of 1 cent per bushel or 20 cents per acre; and the competition of possible tenants for this 20 cents would insure its being given to, or left with, the landowner. The explanation of rent is thus substantially the same

as under our former hypothesis. That is, rent comes to exist when and because the possible output of the best land proves inadequate to satisfy the increasing demand except when actual price has risen to a point above cost of production on that best land.

**Inferior Lands Not Cause of Rent.**—What, now, is to be said with respect to the relation of the inferior lands of our present hypothesis to the rent problem? If we have in mind *the causation of rent,* the most natural answer is that the inferior lands have no part in the matter. If they had been sunk under the ocean by an earthquake, if they had never existed, rent would have risen just the same and just as soon, that is, as soon as the capacity of the best land had proved inadequate to satisfy the increasing demand, save as that demand was reduced by the rising of actual price above the cost of production on the best land. But it is possible to interpret the affirmation that rent depends on the inferior lands, in a way that makes the proposition include an element of truth. These inferior lands are, after all, *lands. If they were not inferior, we could count them right along with the best lands* as adding so much to the total stock and so adding to the total possible output of wheat, with the result that the rising of the price of wheat, and so the appearing of rent, would be much postponed. The reason why they cannot be so counted is that they are inferior. Their inferiority, then, counts indirectly as *a limitation on the stock of best lands.* This, however, seems like a very back-handed way of affirming the fact which really causes rent, namely: the fact that *the supply of the best land is limited to 100 acres.*

**Inferior Lands Check on Rent.**—The above paragraph brings out the point that the inferior lands have no part in the *origination* of rent. Those lands do, however, play a very important role in rent *determination,* namely: *limiting the amount* of rent, checking its growth. Thus, if there had been no 35-cent land available, then, as soon as the demand for wheat had so increased as to become 2,000 bushels at 36 cents, the price of wheat would necessarily have risen to that figure, and rent would have advanced to $1.20 per acre. Under the actual hypothesis, however, the result is quite different.

When the price of wheat reaches 35 cents, it becomes profitable to work the 35-cent land; as a result the possible output becomes 5,400 bushels instead of just 2,000; hence the price of wheat cannot rise to 36 cents, though the demand for wheat at that figure has reached 2,000 bushels, being kept instead at 35 cents as long as demand at 36 cents is under 5,400; and so the surplus and rent are kept from rising.

### Illustrative Problems

1. The existence of rent does not require that there should be differences in the fertility or accessibility of the land. Defend that statement.

2. Why would rent come sooner under the second hypothesis than under the first?

### Third Hypothesis

Let us now bring our hypothesis into closer accord with reality by supposing that the productivity of the land is variable, not absolute, being governed by the principles brought out in Chapters IX, X, and XI. Accordingly, let us suppose that our best land does not show a cost for auxiliary factors as low as 30 cents till the land has been worked to the point of diminishing returns; and that, after this point has been reached, a new expenditure of 32 cents per bushel will add 10 bushels to the output per acre, and a further new expenditure of 34 cents per bushel will add 5 bushels. In short, after we have reached the point of diminishing returns in the working of the land, we shall have, on each acre of the best land, *three* legitimate productive *opportunities:* a 30-cent opportunity, a 32-cent one, and a 34-cent one; and we shall also have *three possible outputs:* 2,000 bushels, 3,000 bushels, and 3,500 bushels. Would this change in conditions require us to change our explanation of rent? In essentials, No. As before, rent would emerge *when and because the demand for wheat at a price higher than cost on the best land had come to be as great as the possible output on that land.* This time, however, a more explicit statement would be needed. Rent would emerge when and because the demand at a price higher than cost on the best land, *that land being worked only to the point of diminishing returns,* had come to equal the possible

output of that best land *worked only to the point of diminishing returns.*

The reason for this change of statement is fairly obvious. Of the three opportunities present on the best land, the *best,* that is, the cheapest, will be first utilized and will yield a surplus at a price which would be too low to justify utilizing the other opportunities at all. Thus an actual price for wheat of 31 cents would give, on each acre, a surplus, and so a rent, of 20 cents, though an actual price of *32 cents* would be necessary to induce farmers to utilize the 32-cent opportunity.

The relation of the inferior opportunities for the production of wheat, derivable from the more intensive working of the best land, to the rent problem are the same as that of those inferior opportunities which are derivable from the poorer grades of land. In *causing* rent, they have *no* part. Rent would arise at the same time and for the same reason, if they did not exist. On the other hand, they play an important part in *checking* the growth of rent. Under our previous hypothesis, rent experienced no check until it had risen to $1 an acre, that is, until the price of wheat had risen to 35 cents and so justified the working of the second grade land. Now, however, there is a 32-cent opportunity on the best land, which opportunity can be utilized as soon as actual price reaches 32 cents; and, with its utilization, demand is temporarily satisfied, the rise of price is checked, and so the growth of rent is checked when it is only 40 cents per acre.

### Fourth Hypothesis

The last of our three hypotheses has brought us much nearer the facts of the real world; but there is at least one very considerable point of difference left. Up to this time, the several costs of producing wheat which appear in the second and third hypotheses have been separated by considerable intervals. Under the second hypothesis, they differed by 5 cents, being 30, 35, 40, etc. Under the third, they differed less, but still by 2 cents most of the time, being 30, 32, 34, 35, etc. Now, it can scarcely be doubted that in real life, even these smaller differences are too great. Very likely the different costs really grade into one another almost insensibly. Since, how-

ever, producers would probably not be influenced in the amount they produced by changes less than one cent, let us suppose that, under the successively less favorable conditions of resort to poorer lands and more intensive cultivation, the costs of wheat are 30 cents, 31 cents, 32 cents, 33 cents, etc., making a supply schedule for our island something like the one given in the accompanying table. Would this change in our hypothesis compel a change in our explanation of rent? The true answer is surely a negative one.

| Price | Supply |
|---|---|
| 30 | 2,000 |
| 31 | 2,500 |
| 32 | 3,000 |
| 33 | 3,500 |
| 34 | 4,000 |
| 35 | 4,500 |
| 36 | 5,000 |
| 37 | 5,500 |
| and so on | |

**Real Cause Unchanged.**—As before, the real cause of rent is the fact that demand at some price above the cost of production on the best land when cultivated to the point of diminishing returns—the *least* cost before rent exists—is equal to the total possible output at that least cost, while demand at a price just equal to least cost is greater than the total possible output at that cost. The fulfilment of this condition causes actual price to rise above the least cost; and thus is brought into existence a surplus on the best land, which is bound to go to the landowner.

But, it may be said, under this new condition there will be a cost of production equal each time to the price which demand establishes; may we not, therefore, say that price rises and so develops the rent surplus *because the marginal cost has increased?* The answer is a negative one. When demand increases till it is 2,000 bushels at 31 cents and 2,100 at 30 cents, the price rises to 31 cents, not because the latter becomes the marginal cost, but because no more wheat can be produced at the old cost of 30 cents. Were there no possibility of producing wheat at 31 cents, and, therefore, no chance that this could be the marginal cost, the actual price would just as certainly rise to 31 cents, and just as certainly cause rent to emerge. The correct statement of the case is this: actual price rises above the least cost and so rent emerges, because no more wheat can be supplied at the said least cost. But the appearance of the price which made rent also justified the raising of wheat at the next higher cost, which raising of wheat stopped the further rise of price and so the further rise of rent, thus bringing about a price for wheat, and so

a rent, *in the fixing of which the demand for wheat and the cost of production both participated.*

## III

### Rent and Disutility

In Chapter XXVIII it was maintained that the disutility cost involved in supplying the three factors of human origin, labor, capital, and responsibility-taking, had a part in determining their price. Can the same be said of the price of the services of land, that is, rent? The answer is of course a negative one. In order to have a real disutility cost, a factor must be of human origin; hence land, which is not of human origin, can have no disutility cost. A particular piece of land may, like any other factor in production, have an opportunity cost. If it is needed for one purpose and we desire to put it to another purpose, the advantage of the former will have to be sacrificed, and this fact will probably have a part in determining the price. But this sacrifice is not a true disutility cost. It follows that rent is determined solely by the significance or utility of land or its services. This significance or utility is probably for one reason or another more easily ascertained for land than for any of the other factors; and so the significance or service-value principle is more fully realized for land than for labor, capital, or responsibility-taking. But if land has no disutility cost, no disutility cost can influence its price. The disutility half of our principle has here no application.

This matter, however, should not be left without further comment. While the furnishing of land services involves no original disutility, it does involve *derivative* disutilities. Under normal conditions, the market price of any piece of ground will approximately equal the capitalization of its net income. In consequence, persons desiring to become rent-receivers will be obliged to invest their capital in the land, just as if it were a producible commodity,—gaining the position of a rent-receiver will therefore mean assuming the ordinary capitalistic disutilities, abstinence, waiting, and risk-taking. Further, this process of capitalizing the income of land will almost certainly work itself out in such a way that the income pretty

closely expresses the disutilities created. In consequence, it might seem that we ought to affirm that rent must be so determined as to be an expression of the derived disutilities of supplying the land services for which it is received. This, however, would not be true. The disutilities *follow rather than precede* the appearance of the rent. Hence *they have no share in determining the rent.* It is rather *the price of the land* which *must be so adjusted as to make the rent an expression of the disutilities involved in furnishing land services.*

# CHAPTER XXXIX

## INTEREST

The subject of interest has probably given rise to more theoretic analysis than any other part of economics. This is due partly to the serious inherent difficulties of the subject, partly to the fact that such theoretic analysis, in the case of interest, connects itself with certain great practical controversies. Of these controversies, the most important concerns the ethical legitimacy of interest. From the earliest times there has been much opposition to this particular source of income as being essentially immoral. This opposition, seeking to strengthen itself theoretically by showing that there are no valid grounds on which the existence of such an income can be justified, has devoted enormous energies to the study of the nature and origin of interest. Thus a purely practical problem has given immense stimulus to studies purely theoretical. It seems best, therefore, that we should here enter into some phases of the subject quite fully; though what we have to say will not be unfamiliar, since it has been, in great part, anticipated in previous discussions.

### I

### The Interest Phenomenon

**Explicit Interest.**—Our first task must be to develop clear and definite ideas of what interest is. Its most familiar manifestation is seen in connection with the ordinary money loan. A lender puts at the complete disposal of a borrower a sum of money; this money or an equivalent sum, is to be returned to the lender after a stated period; and, in return for the advantages which are supposed to accrue to him from this operation, the borrower makes to the lender a special payment amounting to a small per cent of the sum loaned and proportioned to the length of time for which the

loan runs. This special payment is of course the interest we are talking about.

**Implicit Interest.**—The type of interest just described is commonly called *contractual,* or, sometimes, *explicit* interest. It is open, avowed interest. But there are besides many business situations in which interest, though just as truly present, is more or less concealed—*implicit* interest. Consider for example the relation between the prices of ordinary producible goods and their costs in other goods, current labor, and risk-taking. Each unit of product has a price high enough to cover not only the items just enumerated, but also interest on the invested capital,—the sum of money which the entrepreneur could get from the sale of his whole outfit. This must be so, the business man would say, because otherwise no one would devote his money to manufacturing commodities; instead, everyone would *lend* it, getting contractual or explicit interest.

This is inadequate if it is meant to be a *complete* explanation of interest; for sums of money are, so to speak, merely *formal* capital; and the deeper explanation must be found in the interrelations of *those things which borrowed money is used to buy* rather than in money relations as such. But it contains this much truth: It is in the market for money-loans that the various forces which are causing interest to exist and determining its rate, most completely manifest themselves. Accordingly, the business man's method of arguing at this point supplies a clue which will often tell us *where to look for implicit interest.* Wherever we find a person utilizing his capital in a way which precludes his making money loans and receiving explicit interest therefor, we may be quite sure that he is in some way receiving implicit interest.

### Illustrative Problems

1. How does the interest phenomenon manifest itself in the price of a dwelling house?
2. In the hire (rent) of such a house?
3. In the price of a building site?
4. In the fares charged by a steamship in the transatlantic service?

## II

### Essential Nature of the Interest Phenomenon

The surface marks of the interest phenomenon have probably been shown with sufficient distinctness in the preceding discussion. When, however, we inquire as to the *real inner nature* of interest we find ourselves beset with more serious difficulties. Out of a rather confused mass of writing on this subject we may distinguish two principal theories: the *use* theory and the *exchange* theory.[1]

**The Use Theory.**—The use theory is almost universal in the business world and is still widely held by economists. According to this doctrine, interest is a payment for the *use* of capital; capital being conceived either as a sum of money or as money value embodied in some capital good. If a manufacturer borrows on his ninety-day note $600 to buy 200 tons of coal for his engines, he obviously gets all the uses of the coal but in addition he may be said to get a ninety-days' use of the $600 embodied in the coal. Similarly, if Mr. Elder buys a $1,200 automobile on a one-year note, he enjoys all the services which any cash buyer could realize from the machine and in addition he is thought of as having the use of $1,200 for a year's time.

**The Exchange Theory.**—In explaining the exchange theory, our best procedure perhaps is to begin by pointing out the fault in the use doctrine. No one denies, of course, that the borrower or the credit buyer gets some advantage, service, or utility, in addition to the services of the coal or the automobile; if he did not, he surely would not pay the interest. But the use theory, many thinkers affirm, errs in its method of characterizing this advantage. The advantage of the man who buys goods with borrowed money or on credit consists, not in receiving a greater sum of utilities than the

[1] It is not uncommon to conceive these as two different ways of *explaining* interest. I do not consider this view justified. The *real* explanation given by writers from each of the two groups is, in most cases, substantially the same.

men who buy similar goods with their own money or for cash, but in paying what is to him a smaller price. He enjoys all the prerogatives of a man who has acquired ownership in goods by the process of purchase, although he has not made the complementary sacrifice naturally involved in a purchase,—has not in the deepest sense bought the goods at all. In short, his additional advantage over the non-credit buyer consists in *postponing the sacrifice* necessary to becoming the rightful owner of the utilities of the goods.

The exchange theory as to the nature of interest will now be readily comprehended. Interest, it affirms, is in reality a bonus, a premium, a something to boot which the man who buys goods now but does not himself pay for them till some future time, gives to the person who enables him to effect this transaction. Or, looking at the operations from the lender's side, interest is a bonus or premium which the man who relinquishes his right to goods now but gets his pay only at a later date, receives for making this exchange. To put the theory in more conventional form: Whenever present goods are exchanged for future goods, a bonus or premium is paid *by* the party who brings to the exchange future goods, *to* the party who brings present goods; and this bonus or premium constitutes interest. Obviously, this description best applies to *contract* interest, where one particular kind of goods, especially money, is borrowed with the understanding that *just the same kind of goods* is to be returned after a stated interval. But the advocates of this phraseology hold that it describes the real nature of every transaction wherein interest figures at all, even to the most obscure cases of implicit interest. The entrepreneur who buys raw materials, machinery, and labor, and combines these to produce shoes *is in effect exchanging present for future goods;* for the raw materials, machinery, and labor, though literally existing in the present, *are not truly present goods, but only future goods,* shoes in the making, shoes to be.

Into the real merits of this controversy between the use and exchange theories, it will scarcely pay us to enter. In general, we shall asume that the antithesis between the two is not as great as their respective advocates imagine. The man who exchanges present for future goods must, as a condition of doing so, be in a position to wait,—he must have a surplus of wealth which, measured in value,

equals the goods he exchanges for future goods. Speaking figuratively, such a man must be the owner of waiting power, carrying power; and, this will usually be in the form of general wealth,—money or claims to receive money. To say that he sells the use of waiting power does not seem essentially different from saying that he exchanges present for future goods.

## III

### How Interest Comes to Exist

**Requisites of an Explanation.**—In beginning the explanation of interest, it is natural to make a remark similar to that with which we introduced the explanation of rent. Interest exists because the demand (at some price above zero) for a certain thing is in excess of the output of that thing—in other words, because there is an extra-marginal demand for it. To explain the value of any object we have only to show that there are good reasons why there should be a demand for that object and good reasons why the supply should be limited. We are not called on to show that it *must* have value, but *only to point out the conditions which, if fulfilled, will insure its having value.* In the case before us, the thing commanding a price is the *service of carrying* society's stock of reserve goods. In general, then, our task is to show (1) *why there would naturally be a demand for carrying power,—or its equivalent loanable money funds,*—and (2) *why the supply of this service would naturally be limited.*

**Why Waiting Power is Demanded.**—Among the reasons why there would naturally be a demand for waiting power are the following: (1) Overestimate of the importance of present wants (spendthrift borrowing), (2) anticipated increase in income, and (3) the superiority of time-consuming methods in the production of goods or services.

The first of these reasons needs little comment. Overestimation of present as compared with future wants, the conviction that one's immediately pressing desires are important above all things else and must be satisfied—this may be a foolish reason for borrowing, but

it is plainly a very real one. The second reason is almost equally familiar. Many people, particularly the young, think themselves justified in borrowing, even if only to have a little more pleasure in the passing hour, because they confidently anticipate larger incomes in the near future.

The third, and much the strongest, reason why there is a demand for carrying power, waiting power, is to be found in the fact that the control of such power enables us to increase enormously our productive efficiency. The chief reasons why this is true were brought out in Chapter V, when we were illustrating the function of capital as a factor in production additional to labor and land. High productive efficiency requires that we should maintain a vast fund of reserve goods, goods devoted to the service of the future. The desire to attain this efficiency leads us to come on the market as buyers of the right to use the surplus wealth which constitutes capital.

**Why Quantity of Waiting Power Is Limited.**—I have dwelt on various reasons why there would naturally be a demand for waiting power, carrying power. It is equally easy to show that there would naturally be a *limitation on the supply.* As we already know, the ability to furnish this service of carrying depends on the accumulation of a reserve fund of goods or money, and this accumulation can be made, in the last analysis, only through *saving.* But there are limits to the total saving capacity of a community. In the first place, the amount which a community could set aside for the future would of necessity always be limited by the total income; we could not conceivably save more than the total product of our efforts. But, again, we could not by any possibility devote even this total product to providing for the future, for some of our present wants can go unsatisfied only at the cost of life. Further, it would be folly to sacrifice any present needs for the sake of future ones which were not of equal importance. Accordingly, a wise economy would never build up the stock of carrying power for the satisfaction of future wants from that part of the current income which is needed to satisfy present wants of more, or even equal, importance.

The share of current income which can be devoted to the service of the future is further limited by the fact that future needs of a certain degree of intensity are *not really as important* as present needs of the same degree of intensity. For this there are two reasons. (1) Life itself is *uncertain;* the present we have, the future may for us never exist. A perfectly sensible and prudent person, therefore, will refuse to sacrifice a present want of a certain magnitude for a future one of the same magnitude. (2) Gratification of the present want is sometimes a condition necessarily precedent to the future want. Thus, the gratification of the present want may be essential to the continuance of *life,* or at least to the maintenance of that degree of *physical and mental health* which alone can fit us for the enjoyment of the future gratification.

But, even if present and future wants of the same magnitude were equally important, we should still have a check on our processes of saving. This consists in the same tendency we have cited as a cause for the rise of demand for carrying power; namely, the almost universal *overestimate* of the importance of *present* wants, the almost universal *underestimate* of the importance of *future wants.* For the same reason that borrowers borrow, savers are disinclined to save anything to lend them. Not to gratify the want of today seems an unbearable hardship, while we contemplate without misgiving the deprivation of tomorrow. No doubt there are individuals to whom these remarks do not apply; some people accumulate much even with small incomes. But most of us spend freely or even carelessly; and, as a result, the supply of the carrying power, the savings of the community for the future, accumulates less rapidly than it would if prudence in such matters were universal.

We have thus shown why it is natural that there should be, on the one hand, a demand for carrying power, and, on the other hand, a limitation of the supply. This does not prove that there *must* be interest. To prove that, we should need to show that the conditions tending to build up a demand for carrying power and those tending to limit the supply of carrying power are so potent that they necessarily make the demand at some rate of interest above zero greater than the supply at that rate. To prove anything of this kind would be from the nature of the case impossible. However, as was pointed

out in an earlier paragraph, we are not called on to undertake such a task. Our business here is to *explain* interest. This does not require us to prove that interest must exist, but only to name *the conditions which, if fulfilled, will cause it to exist*—and this, plainly, we have done.

### Illustrative Problems

1. "That capital is productive has often been questioned, but no one would deny that tools and other materials of production are useful; yet these two propositions mean exactly the same when correctly understood."

Show that those persons who object to calling capital productive would hardly be satisfied with the above proof.

2. Suppose that a fisherman could catch 21 fish a day without the aid of a net or boat or any other form of capital; that to make a net would cost him 30 days' labor; and that it would last only 30 days.

(a) What is the smallest number of fish which the net must enable him to catch each day in order to make it possible for us to credit any portion of the product to capital as capital?

(b) Supposing that the fisherman catches with the aid of the net 200 fish a day, what is the maximum productivity which could be credited to the capital as capital?

(c) Under what circumstances would that maximum tend to be so credited to capital?

(d) Supposing that only 1,000 fish were actually credited to the net as its product, how would you explain the fact?

(e) Can you imagine a condition of things under which no part of the catch would be credited to the net?

3. In order that we should impute productivity to capital, is it necessary that some part of the capital supplied have a cost of abstinence?

## IV

### Interest and the Significance-Disutility Principle

**Interest and Significance.**—We argued in the preceding chapter that the economic share known as rent is with special ease brought into correspondence with the economic significance of the service rendered by land. We might almost as well have chosen *interest* as being peculiarly submissive to our principle. Almost everywhere the capital market is especially free from interference, is

especially characterized by freedom of competition. If, then, the reasoning of Chapter XXX be accepted,—the reasoning that under complete freedom of competition the price of each primary factor inevitably tends to be one which expresses the marginal significance of that factor—we may be quite certain that this is true of interest, the price of the use of capital.

There is, to be sure, probably no method of ascertaining directly and definitely the product-significance of a given unit of capital. Not a few writers believe such a method to exist, but I do not share their conviction. The economic significance of capital does not manifest itself in the same tangible way as does that of land.

Nevertheless, the *automatic process* which we depended on in Chapter XXX to make the prices of primary factors express their marginal significance here operates freely and fully. On every side opportunities arise for the use of capital in order to substitute machinery for labor. *The advantage or disadvantage of such substitution turns finally on the rate of interest,* the price of the use of capital. Entrepreneurs compete or refuse to compete for the supplies of capital according as its price does, or does not permit a profit on its use. So, the owners of that capital openly compete against each other to insure its employment. If its price exceeds its marginal significance, some portion of the supply will soon cease to be employed. If its price is below its marginal significance, marginal and intra-marginal users will have to bid it up to shut out the extra-marginal users. Entrepreneurs may be individually and collectively in complete ignorance as to the real marginal significance of capital; but they have no difficulty ascertaining whether, at a given rate of interest, they can advantageously bid for more capital. *Paying no attention to anything other than their own immediate profit, their spontaneous action finally brings the rate of interest to a point where it expresses the advantage of the marginal opportunity for the use of capital.*

**Interest and Disutility.**—Is the rate of return to capital governed also by the disutility principle? Undoubtedly, as we have already argued more than once, the supplying of capital does necessitate some sacrifice or disutility. The question remains as to whether

the marginal portion of this sacrifice is expressed by the rate of interest. Doubtless a negative answer is possible. The volume of capital accumulation is influenced by other conditions than the rate of interest. For example, some persons are in a position to save from the present income without appreciable sacrifice while, at the same time, they desire to provide a surplus for the future. Such persons would accumulate capital even if they were obliged to pay for the privilege. It is, therefore, conceivable that the amount of capital actually supplied to the market is not influenced to any great extent by a regard to the interest paid. If not strictly a fixed-output good, it would have its fluctuations of output determined through forces other than cost. The price of its use, therefore, would not have to conform in any degree to the sacrifice of saving it.

But, while this state of things is conceivable, it surely does not exist in fact. One type of accumulation, certainly, is motived by considerations of direct economic gain. I mean the getting together of a small sum to make a start in business or speculation. Doubtless we are not here dealing with pure interest—the *profit* expected is the more important item. Still the interest problem is also present, since the entrepreneur who puts his own capital into a business cannot help performing the *waiting* function as well as the responsibility-taking function. Now, every year a large amount of capital comes into existence in this way; and it is hard to believe that such capital has no influence in determining the rate of interest.

But, finally, the accumulating of that portion of capital which is devoted to earning interest only must be materially influenced by the immediate reward in the shape of interest. Surely there are not a few people in such a position that they naturally say: The rate of interest has fallen so low that it really is not worth my while to save any more; I would better enjoy the present. If so, their decision for or against further saving must change the volume of capital sufficiently to modify its price. Putting the matter in a still different way, can we seriously doubt that a fall in the rate of interest to zero would diminish the stream of new capital, or that a rise to ten per cent would increase that stream? If not, then we must say that the price of the use of capital must tend to express the marginal disutility of supplying it.

## V.

### The Rate of Interest and the Quantity of Money

**In the Long Run.**—Besides the general theoretic questions respecting interest already considered, there are one or two of a more practical sort which claim our attention. A very persistent and troublesome popular fallacy makes the rate of interest to vary inversely as the quantity of money; whereas of course the more ultimate causes determining interest are found, not in the demand and supply conditions of mere money, but in those of *real capital,* such as engines, machines, and lumber. This fallacy seems to spring from a popular confusion of money and capital. It is not unnatural in view of the fact that capital is always marketed in the *immediate* form of money or the money equivalent, bank credit. As a matter of fact, we may, in the long run, safely take as our guide to the interest relations prevailing among real capital goods, the market for mere money capital. But this is only because in the long run those interest relations prevailing among the real capital goods find full expression in the market for money capital. In the actual determination of interest the quantity of money plays little part.

The argument is simple. What the borrower really wants is not money but goods,—engines, cars, rails, labor; and putting out more coin or more paper money will not make these goods cheaper to borrowers, nor will the withdrawal of money make them dearer. Or, if we suppose the rate of interest to be lowered at first by an increase of money, the natural working of things will soon reverse the movement. (1) The lower rate will lead to extensive borrowing and buying of goods. (2) This will raise the prices of goods; since they have not increased though the money has. (3) This will compel borrowers to borrow *more* money in order to get the same amount of goods. (4) This will raise the rate of interest again to its former place.[2] Summarizing, we have the following principle:

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[2] In fact, it is generally held that, when the stock of money is increasing, the expected fall in its value—rise in prices—will cause lenders to hold back for a higher rate of interest in order to insure themselves against loss on the principal.

**Principle.** *In the long run, the rate of interest must be determined in substantial independence of the quantity of money.*

**For Short Periods.**—But, while in the long run we cannot expect to influence materially the rate of interest by altering the quantity of money in circulation, we can for brief periods accomplish this result. In fact governments and powerful banks at times consider it one of their functions to manipulate the money stock for the express purpose of raising or lowering the rate of discount. Thus the Bank of England has in several instances contracted the circulation of London in order to force on the market a higher rate. The possibility of bringing about such results in the way indicated rests upon the following facts.

Short-time loans largely connect themselves with the need for money, not to invest productively, but to *meet money obligations.* The demand is thus emphatically for *money itself,* not something which money will buy. Hence the short-time rate adjusts itself to the marginal utility of *money* capital, without much regard to goods capital. Emphasis rests also on the fact that the short-time rate adjusts itself to the marginal *utility* of money capital with little regard to the *disutility* of saving. This is simply the old case of short-time normals being determined without respect to cost of production. During a series of years, the price of wheat tends to equal its marginal cost of production. But between two harvests its price tends to be one expressing the marginal utility of the existing stock.

**Principle.** *For short periods (a few weeks or months), the rate of discount (interest) tends to equal that rate which expresses the marginal utility of the stock of money capital without much regard to the marginal utility of goods capital or the disutility of saving.*

## VI

### The Rate of Interest and Risk

At any one time the rate of interest on capital used for the same general purpose differs greatly in different places, say Ann Arbor

and Spokane; and even in the same place at the same time it perhaps differs widely when the capital is put to different uses. The chief explanation of these differences is doubtless inequality in the matter of risk. The excess over, say, four per cent in a given time and place may be conceived as an insurance premium, necessary to cover losses from bad debtors, or perhaps as a payment necessary to overcome the natural indisposition of the lender to take chances. If we understand by "gross interest" the amount actually paid and by "pure interest" the rate to cover the simple use of capital, we may lay down the following principle, which though obvious and familiar, is unfortunately often overlooked.

**Principle.** *The amount by which gross interest in any particular case exceeds pure interest tends to vary roughly as the risk involved.*

# CHAPTER XL

## WAGES

As was the case with rent and interest, wages constitute the price of one of the primary factors. It follows that the general argument for the dominance of the significance-disutility principle over this share in distribution was implicit in Chapters XXVIII to XXX when we were showing that the prices of primary factors in general are determined by this principle. In the present connection, therefore, we need only to comment briefly on some facts which tend to modify more or less the workings of the general principle. We will comment first on matters which seem to interfere with the significance half of the price.

### I

### Wages and Significance

**Labor Organizations.**—One of the most important obstacles to the complete domination of the significance principle in the case of wages is the fact that there is more or less restraint put on competition by those who supply labor services: in a good many occupations, something like a labor monopoly exists. Restriction is secured both by *limiting the number of laborers* in a given field and by *limiting* through various devices the *natural output* of those persons who do get into the field. As a result, the share of these persons tends to exceed that which would express the marginal significance of the *natural* output of their type of service. In short, society has to pay for many of the higher services more than would be expected in view of the amount of those services which would naturally be forthcoming. Laborers who supply the services get more than they earn, using the latter term in its ordinary sense.

We need not, however, take this concession too seriously. In

this age of publicity, free education, and universal initiative, few combinations could, in the long run, be successful in shutting out the competition of the really fit. Further, the policy of the trades unions is to some extent—though certainly not a large one—offset by an analogous procedure on the part of employers. Adam Smith, the so-called father of Political Economy, said that there always exists a universal, though tacit, combination among employers to keep wages down. This was probably nearer the truth in his day (1776) than now. The vastly greater extent of the market within which labor is bought and sold now makes tacit combination almost impossible; and formal combination for this end seems not to have been carried far. Still there is probably enough to offset in some measure the monopolistic combinations of labor. In short, it is probably safe to assume that the wages of even the higher forms of manual labor are not priced at a point materially above their natural marginal significance.

**Immobility of Labor.**—Another obstacle to the complete domination of wages by the significance principle is *the lack of mobility among laborers.* We have all noted that the mere *competition of sellers* will not secure the advantage of buyers unless the latter are themselves reasonably alert. A shop may advertise ever so conspicuously the fact that it sells the same wares at prices below those of its rivals; but, unless buyers note the fact and act accordingly, they will not benefit from the favorable competition. But the converse proposition is also true. The mere competition of *buyers* will not insure good prices to *sellers* unless the latter are alert enough to become cognizant of the fact, and are in a position to profit by their knowledge. Ignorance, lack of means, inertia—by all of which laboring men are too frequently hampered—may combine to neutralize more or less completely the advantage which they might derive from the free competition of employers.

**Custom.**—Another reason often given for expecting wages to be different from what they would need to be to express the marginal significance of labor, is that wages in many fields are fixed by *custom.* Thus we have been wont for years to pay housemaids $3

to $4 per week in one social class, $5 to $6 in another, $7 to $10 in another. Similarly, the wages of common labor range usually from $1 to $1.50 per day. Now, without doubt, custom has some direct influence on the rate of wages; but that influence is, in the opinion of the writer, much exaggerated. In the first place, the facts do not display the degree of uniformity claimed. Within a few years a very marked change in the alleged customary standard has taken place. The amount which we commonly assume will have to be paid for one or another type of labor has changed three or four times in the memory of living men. Again, the uniformity claimed is not exact enough to show the effect of custom. Custom is nothing if not fairly inelastic. A custom which permitted men to wear at a formal dinner anything from a frock coat to a doctor's gown would not be called a custom at all. So, a custom which makes wages for one type of service range from $3 to $4 a week can hardly be called a custom.

Again, if wages were so much under the influence of custom, we should see but little change in their rate due to inflation of the currency, rise in the value of the standard, immigration, booms in business, and other modifying conditions. But statistical investigations have shown that wages, though moving somewhat slowly, do actually move in response to changed conditions. Finally, the considerations noted a few paragraphs back, publicity, general education and universal initiative, create a strong presumption against the belief that in our day mere custom can exert a marked influence in wage-determination.

**Bargaining.**—We have, finally, to remark a tendency rather pronounced with some present-day writers to put forward the influence of *bargaining* in the determining of wages as a reason why wages cannot, and do not, express marginal significance. These writers usually set out with the idea that the sole downward limit of wages is what the laborer will take, much as the upper limit is what the employer can afford to pay. They thus overlook altogether the *part played by employers* in fixing another possible lower limit to wages, and hence insure that the supposed lower limit shall be a very low one indeed, one leaving ample room for bargaining. But

this analysis is certainly unsound. There *is* another lower limit [3] besides what the laborer will take, namely, the significance of labor to the first extra-marginal employer; and this limit is often much *higher than the employee's minimum,* so that the range of bargaining is much narrowed. Further, a good deal could be said for the contention that the laborer's minimum which really appears most of the time is the wage he believes he can get elsewhere; it is not a true laborer's minimum but rather a minimum set by the extra-marginal employer.

Generally speaking, then, bargaining does not seem to act upon wages with the force recently attributed to it, and does not seem to limit in any marked degree the dominance of the principle of marginal significance. In so far as our principle is displaced by bargaining, this is probably true, not because bargaining as such can override the natural limits set by the marginal and first extra-marginal significances, but because the bargaining is, on one side, *collective, monopolistic.* The individual employer has to deal, not with each workman, nor even with his workmen as a unit, but with the trade; and the trade as a totality has restricted competition in one way and another so that bargaining can move wages outside the limits set by the marginal and extra-marginal significances of the *natural* output. But this was already provided for in admitting that monopolistic labor could set limits other than those which would be established by the marginal significance of the natural output.

## II

## Wages and Disutility

**Overtime Labor.**—An interesting confirmation of the contention that wages have to be such as to express the marginal disutility of supplying labor services, is to be found in the fact that everywhere laborers insist on higher rates of compensation for overtime work. The disutility attaching to an eleventh or twelfth hour of labor is greater than that attaching to the earlier hours, and

[3] Oddly enough, the analysis is usually inconsistent at this point; for it does *not* ignore the part played by employees in fixing an upper limit which may be under that fixed by employers.

employers commonly find it necessary to offer higher rates for these extra hours to induce the desired supply of labor.

**Freedom of Action Lacking.**—It is sometimes objected, in this connection, however, that the *laborer's freedom of action is too limited,* under modern conditions, to make possible the easy operation of the disutility half of our principle. Under a simpler order of things the laborer might cease working as soon as the added utility, in the form of wages or goods, fell below the marginal disutility of his labor. He would stop his day's work at the end of say ten hours, or nine, or eight, unless an additional hour would clearly add enough to his returns to offset his discomfort. But under modern conditions the length of the day is largely a fixity, determined by custom and by the necessities of business processes. The latter commonly require the coordinated working of great numbers of persons and large volumes of capital. The individual laborer cannot decide of his own motion to shorten his day to nine hours or eight hours, for he is only a small part of a vast and complicated mechanism. This shortening of the day can only be done concertedly by the common consent of many employees and employers.

**Still Much Freedom.**—This objection is not without point, yet it has much less weight than one might suppose at first sight. The disutility of labor can act upon the supply and so upon the price of labor, not only by altering the length of the working day, but also by diminishing the total number of working days and the total number of men who work at all. The decrease in the number of working days, as a result of disutility, is especially conspicuous in times when the demand for labor is very great and wages consequently very high; but at all times it probably plays a greater part than is commonly supposed. A very considerable per cent of the men who are engaged in the ordinary trades which we have in mind when speaking of labor in general, work a few days, weeks, or months, and then loaf for a time, not hesitating even to give up the present job, confident in the knowledge that they can easily find another.

**Only Freedom at the Margin Needed.**—Doubtless the number of men who are ready to quit work altogether and thus reduce the supply of labor, when wages are inadequate to cover the disutility as rated by them, is smaller than the number who quit work temporarily. Men are more loath to become dependent upon relatives, or "take to the road." But this number is not, after all, negligible. It helps to give the labor supply an elasticity sufficient to make disutility a real factor in the determination of wages. For we must remember that it is not necessary that *all* or a very *large* part of the supply should be ready to drop out—it is sufficient that *an appreciable margin* should be in this attitude.

**Wages and the Standard of Living.**—The effect of disutility on the supply of labor, and hence on wages, is brought about not merely by a decrease in the supply of labor services from men and women already living, but it is reflected also in the size of laboring men's families, and, so, in the future supply of labor. While there is probably little *direct* regulation of the size of workingmen's families because of economic motives, yet, through both conscious and unconscious processes, population tends so to adjust itself that the typical rate of wages is compelled to coincide roughly with the workingman's conception of what is essential to a *decent living.* This, of course, means merely that the result named is effected in the long run. Laborers cannot raise their wages here and now merely by deciding that more is needed to insure a decent living. At any moment their numbers are fixed; and comparatively few will take to the road for the difference between $1.50 and $1.40 a day. Their wages, therefore, must for the moment roughly correspond to the marginal significance of their labor. But a given standard of living insisted upon through a series of years will express itself in diminished population; this, in the end, will raise the marginal significance of labor; which, finally, will raise wages to the required height.

A very practical application of the above principle is seen in the fact that the rate of wages can be altered by changing the ideals of the wage-earners. Adverse conditions may permanently lower actual wages, because those adverse conditions may hold wages below the old standard of living until the working classes have in-

sensibly come to accept a new inferior standard. On the other hand, favorable circumstances may work the opposite result. In short, a new level of wages brought about, and for some time maintained, by temporary causes, tends to persist.

The points brought out above may be formulated in the following principle and corollary.

**Principle.** *Under the natural working of economic and social forces, the long-run rate of wages tends to be that rate which will enable the working classes to maintain that standard of living which, in the particular time and place, is looked on as necessary to a decent living.*

**Corollary.** *In the long run the rate of wages can be altered by changing the ideals of the working classes as to what is essential to a decent living.*

### Illustrative Problems

1. What bearing does our principle have on the question whether Chinese immigration should, or should not, be discouraged?

2. "No remedies for low wages have the smallest chance of being efficacious, which do not operate on and through the minds and habits of the people."—Mill.

Argue for the truth of this statement. (It probably needs qualification; but leave that for some other occasion.)

3. Argue that, though the restrictive policy in the trades unions temporarily injures lower classes of workingmen, in the long run it is likely to raise wages generally.

## III

## The Theory of Employment

**Employment and Say's Law.**—One aspect of the wages problem which has the greatest practical importance for every worker is *employment.* Some of the most important aspects of this matter connect themselves with a topic discussed much earlier in this text under the title of Say's Law. In our present connection,

we will merely enumerate some of the corollaries of that law applying to employment.

(1) *The destruction of objects of wealth which are bound to be replaced does not increase employment.*

(2) *Private expenditure for extravagances, as contrasted with other forms of expenditure or even with hoarding, does not increase employment.*

(3) *Governmental extravagance does not increase employment.*

(4) *Producing for oneself, when it is done without decreasing one's output for the market, does not diminish employment.*

It might be well, perhaps, to give this last proposition the benefit of an illustration. A person who produces through his property or his efforts, say, $1,000 worth of products each year, does not diminish employment by putting in some spare time building himself a rowboat. Assuming that his outside production is not changed, his demand for goods on the market is the same as before, and therefore creates the same volume of employment opportunities.

(5) *Broadly speaking, an increase in the supply of labor services creates opportunities for employment as well as absorbing them, though not usually in quite the same proportion.*

This proposition is not so evident as the preceding; nor can it be accepted without larger qualifications. But it is still substantially true. If the whole producing group creates a demand for labor by producing, it follows that the labor part of the producing group creates a demand for labor by its producing. Doubtless it must be admitted that *not all* the demand created by labor's production will eventuate in a demand for other labor; since labor's demand for goods will be a demand for all the factors necessary to produce those goods, land and capital services, as well as labor services. But with the majority of commodities, the contribution of labor, direct or indirect, is by all odds the most important element.

There is no intention here of asserting that the process described will have no adverse effect. Without doubt it will tend to cause some decline in the *rate of wages,* under the working of the principle of diminishing marginal significance. But this result is not to be confused with the question of employment.

**Employment and Foreign Trade.**—One of the most obstinate of popular fallacies is the notion that the employment opportunities of the people of a community are diminished by carrying on trade with other communities, that buying outside takes away jobs from one's own people. The unsoundness of this notion was brought out in the chapter on the Principle of Reciprocity. In this connection, therefore, only a word is needed. Foreign trade is necessarily reciprocal. If we are buying abroad, we must be selling abroad,—must be delivering the foreigner some form of wealth, either goods or money.

But, in producing the commodity or commodities with which we pay the foreigner for our purchases, we create opportunities for employment just as truly as we should by producing the imported goods at home. There are some valid arguments for artificially developing certain industries within our own borders; but this "more employment" argument is not one of them.

**Employment Dependent on Land and Capital.**—In carrying forward the preceding discussion, it was assumed that, in demanding goods, the public create an almost equal demand for labor, and, so create an almost equal amount of employment. But this presents only a partial view of the matter, since production requires other factors besides labor. A demand for goods cannot constitute a demand for the labor needed to produce those goods, unless there are land and capital available to complete the combination. It is, of course, equally true that a demand for goods does not constitute a demand for the land necessary to produce those goods, unless there are available labor and capital to complete the combination; and a similar affirmation may be made with respect to capital. In short, in a sense each kind of productive goods constitutes a demand for the others. Our concern here, however, is with the opportunities of labor rather than land or capital. A formal statement of the point just made gives us the following:

> **Principle.** *Broadly speaking, satisfactory opportunities for employment vary with the abundance of natural resources and capital.*

**Limits of Possible Employment.**—In the preceding discussion we affirmed the reciprocal dependence of land, capital, and labor for opportunity. Rigidly interpreted, this doctrine would suggest that there is a definite limit to the opportunities for each of these factors, or, for our special purpose, to those of labor. Given a certain outfit of natural resources and capital, there will be opportunity to utilize a definite amount of labor and no more. Such an interpretation would nicely support the popular notion that there are just so many jobs, no more and no less, so that giving a job to one person necessarily takes one from somebody else. To the trained economist, this view seems quite unwarranted. But possibly our present discussion may have given it some color of sense. Does not the affirmation that land and capital, as well as labor, are essential to production support the contention that labor opportunities are strictly limited?

In answering this, we have to remind ourselves that all industry is, during some period, in the condition of returns increasable at diminishing rate. That is, even if the available quantities of land and capital are constant, yet increasing the amount of labor *will increase the total return* to the combination, *though not proportionately.* Since the increase in return is the contribution in the product which will be credited to the additional labor, and, as such contributions will determine the price of labor, it follows that the new conditions will lower wages. Still, this will not alter the fact that the new labor has found employment. Accordingly, we may say that, *under ordinary conditions, no one need lack employment if he is content to accept that wage which expresses the new marginal productivity of labor.*

As a basis for the foregoing argument, it was said that, *during some period,* industry is in the condition of returns *increasable* at diminishing rate. But this basis does not always hold, and so the principle laid down calls for qualification. It is possible that industry should reach a stage where its returns are *substantially fixed,* where they have reached their maximum;—even if the efforts of another laborer could increase the output somewhat, still the additional amount would be so small that even with the extremest conceivable economy it would not furnish subsistence. Employment is so far

dependent on land and capital, and the possibilities of industry are so limited that *a time is always liable to come when opportunities for employment cannot experience any measurable increase,* when no more laborers can be utilized.

Further, in actual life the practical, effective limit to employment is usually reached somewhat short of the combination of maximum returns. The decline in the marginal productivity of labor does not go on till men *could* live on no less. Rather it stops where they *will* live on no less. In earlier times conquering migration and, more recently, peaceful emigration have brought relief; and in our own day improvements in methods of production have repeatedly pushed far into the distance the point of maximum returns.

**Employment and the Rivalry of Capital.**—We have seen that in some sense and to some degree employment opportunities are dependent on the presence of a large volume of capital. It has to be added that the fulfilment of this condition may also bring an unfavorable reaction. Capitalistic methods are generally *labor-saving* methods, hence methods which in themselves decrease the need for labor as compared with the need for capital. Capital therefore appears in some sense the rival or competitor of labor. This fact has naturally given rise to much controversy as to whether the introduction of improved methods does not diminish the total demand for labor. (1) All are agreed that *immediately* certain classes of laborers suffer by being thrown out of employment and compelled to make new adjustments. (2) Experience shows that, in any given industry taken as a whole, there is little, if any, decrease in employment; because the lowered price due to lowered cost so stimulates demand that the old workers are needed to meet that demand even under the new and more efficient methods. (3) The lowered price due to lowered cost, if it does not create new demand, releases buying power saved because of the lower price, which will be spent on new products, save on the almost inconceivable hypothesis that goods have become so abundant and their marginal utility so low that people no longer *want* more things. But supplying these new products will furnish employment opportunities for the labor displaced in the old industries.

These last remarks would not show that the introduction of improvements has no tendency to *lower wages* by making labor relatively more abundant and so lowering its marginal utility. We are here concerned only with *opportunities* for employment at some wage or other.

# CHAPTER XLI

## PROFITS

### I

### The Real Nature of Profits

In the *business world,* profits were early recognized as a special share in distribution, though sharply distinguished from interest only when part of the capital was borrowed. This recognition was present also in the earlier theoretic discussions. The medieval churchmen, who sweepingly condemned interest—usury as they called it—seem to have considered profits legitimate, meaning by profits a share going to the capitalist who undertook the risks of enterprise. But, after economics had come to have some scientific development, profits largely failed, especially among the English and American writers, to receive any distinct and separate treatment.

Even when in the middle of the last century the office of the entrepreneur began to get attention from English economists, there was a singular failure to recognize his true function. He was represented as primarily the man who *managed* productive operations. And this happened in countries in which industry was rapidly passing into the hands of entrepreneurs who *hired men to manage their business* rather than doing it themselves. This doctrine still shows a most astounding tenacity in the texts, though it is manifestly quite untenable. The peculiar function of the entrepreneur must surely be found in *something which he only can do,* which he cannot hire someone else to do. For anything coming under the latter category is plainly labor. Now, the only functions which seem necessarily to be left with the entrepreneur, are the assuming of *final responsibility* and performing *certain types of management which cannot be delegated,* for example, appointing those who shall direct the business.

**Gross Profits.**—Profits, as the term is frequently used by the general public, include the *whole* net return to the responsible owner of a business after money outlay has been deducted from money receipts. This whole return, which we might call *gross profits,* usually includes at least three elements, (1) wages of some sort, principally for management, (2) interest on capital invested, and (3) a remuneration for *taking the responsibility* of production, and *making certain final decisions which necessarily fall to the owner.*

The first element has come to be eliminated from profits even in the popular sense of the term because of the great extension of the corporate form of business in which the work of management is turned over to hired officials. The second element, interest, is still commonly included. That is, stockholders in a concern paying 7 per cent dividends would think of the business as yielding 7 per cent profit, rather than 4 per cent interest plus 3 per cent profit. In this sense, profit is contrasted with interest in being the return to the capitalist who bears the *whole* burden of ownership, *waiting plus responsibility-taking;* while interest is the return to the capitalist who assumes only one part of the burden, waiting. In strict economic analysis, however, profits ought to be limited to the third element, the taking of responsibility and making final decisions. From this point of view, profits in the illustration above would be only 3 per cent, the difference between what the capital would have received if *lent* to the company and what it actually did receive as *invested in* the business. Profits in this sense, we will call *pure profits* or profits proper.

**Pure Profits.**—Pure profits, then, are the remuneration for responsibility-taking, especially for the risk element in responsibility-taking. They include an infinitesimal amount of wages, in that the owner must make certain final decisions—though in practice this tends to become negligible—and perhaps other disutilities or sacrifices. But the chief element in the case is the bearing of economic risk.

**Profits Risk a Special Type.**—That risk for the bearing of which profits are paid must not be confused with the *regularly re-*

*curring, calculable* losses of a business. Such losses simply increase the outlay for labor and capital goods. The remuneration received by the entrepreneur because of such losses would never be thought of as profits, but only as a fund to replace costs. The risk for which profits are paid is the risk of *losses which cannot be recouped in the experience of the individual entrepreneur,*—risks of total failure, or some loss almost as great. Compare the breakage of bottles in the brewery business with the chance that temperance legislation will destroy the business. The former is covered by greater outlay. The latter is a not-to-be-compensated loss. To induce men to assume the risk of such a loss, they must be paid something, not of course enough to cover the loss if the risk should become a certainty, but *enough to move their wills to face the possibility of loss.* It is thus evident that profits must not be conceived as a contribution to an insurance fund from which losses are covered. There is no such fund; the losses are not covered.

**Profits Under Socialism.**—Under Socialism, the sort of risk now remunerated by profits would in the main be covered by an insurance fund; since the state, having a complete monopoly of production, would pool in its own hands all risks, and, as well, all chances of occasional gain. The risk cost of production, therefore, except perhaps in the case of long-time enterprises undertaken for future generations, would become simply *more capital and labor cost,* instead of being as now, the price of the *psychological disutility of bearing risks.* It is probable that the state would charge each commodity with the average cost of the whole output of that commodity, including successful and unsuccessful branches of the industry involved. Profits, as an element of cost, would not therefore be entirely eliminated under socialism, but would appear in another guise.

## II

## Do Profits Tend to Disappear?

A noteworthy fact in recent economic discussion is a disposition to hold that profits—pure profits—tend to disappear. The argument for this contention moves along two general lines. (1) It is affirmed

that pure profits, assuming them to be paid for risk-taking, will necessarily disappear with the elimination of risk from industrial affairs; and such elimination is steadily proceeding through the increase of knowledge, forethought, and invention. (2) Secondly, it is claimed that the disutilities correlated to profits are disutilities which plenty of men, especially in America, are quite willing to assume without reference to an economic reward. The desire for power, the craving for better social standing, and the gambling spirit which eagerly improves the opportunity to take chances,—all these unite to make men willing to undertake the responsibilities of production, even though they expect to get nothing more than ordinary interest on their capital and ordinary wages for their labor.

**Chance Not to Disappear.**—In reply to the first of these arguments, it seems sufficient to declare that the complete disappearance of risk, chance, uncertainty from industrial affairs, if not quite impossible, is certainly so remote that it cannot properly be made the basis for any affirmations with respect to the present order. Some centuries hence we may have become able to predict the weather for a year in advance with absolute precision; but we shall still have to reckon with the uncertainties due to human folly and caprice.

**Motives Named Inadequate.**—The second argument is less easy to answer, yet will not, I think, carry conviction to most persons. The first two motives named, the desire for power and the desire for social position, affect only a small minority of our entrepreneur class, namely, the small individual or partnership entrepreneurs, who combine in themselves the functions of capitalist, manager, and entrepreneur. For most of our entrepreneurs, belonging to that class merely by virtue of being stockholders in some industry organized as a corporation, enjoy neither power nor prestige. Under the corporate organization of industry, salaried officials are the ones who wield power and the social position of capitalists (bond-holders) is surely as good as that of stockholders, assuming their investments to be equal. But, if there is any large section of the entrepreneur class with whom these non-economic motives would not suffice,—

who would insist on a greater economic return for taking responsibility than for simply lending their capital—then, profits would surely have to be paid.

**Pure Risk Not Desired.**—The third consideration,—the gambler's desire to take risks—contains the old confusion of ideas which has already been commented on more than once. It is undoubtedly true that men are so ready to take risks, when a possible prize is in sight, that they do not *as a whole class* have to be remunerated for taking that risk. If all the copper producers of the world spend 500 million dollars worth of labor and capital getting out the product, it is not necessary that the product should be worth 500 millions plus something for the risks taken. On the contrary, that product will probably be worth less than its labor and capital cost, say 400 millions. But all this is beside the point. The real issue concerns, not the whole *class* of entrepreneurs interested, but only those upon whose conduct depends the output actually supplied, the successful entrepreneurs. Do these persons have to get profits? Surely they do, else there would not be this gambler's eagerness to assume the risks of the business. The proper test for determining whether profits as a remuneration for risk-taking really exist, is this: Does society have to pay a higher price for a given commodity or service than it would have to pay if risk were eliminated? Surely there can be but one answer to that question, the affirmative one.

## III

### Profits as Affected by Changes in the Value of Money

In an earlier discussion, it was shown that the value of money itself may change, and so general changes in prices may take place without reference to the conditions ordinarily governing the value of each commodity. Thus, under the paper money standard of Civil War times, there was a general rise of prices, or, in other words, a fall in the value of money, in the United States. So, for many years following 1873 there was a general, though gradual, fall in prices,—a rise in the value of money,—affecting most or all of the western nations. Much more rapid ups and downs mark the

periods immediately preceding or following commercial crises or panics.

**Common Fallacy.**—There has naturally been much debate as to how far such movements influence all shares in distribution and particularly profits. At first thought one is inclined to say that of course such changes influence profits. If a merchant has paid $100,000 for a stock of goods and because of a universal and simultaneous fall in prices, their value declines to $60,000, how can anyone deny that the merchant is losing $40,000? This sounds plausible, but is in fact an undoubted fallacy. A universal and simultaneous fall in prices of 40 per cent raises the buying power of $60,000 till it is just as great as was the value of $100,000. Assuming, then, that *no other element was involved,* the merchant in question would neither gain nor lose as a result of the general fall in prices. That fall in prices does not of itself mean a fall in profits.

**Borrowed Capital.**—The above affirmation was qualified by the assumption that no other element was involved. But in actual life this condition is seldom fulfilled. In the first place, the merchant is usually carrying on his business in greater or smaller measure with *borrowed capital.* But the sum which he has promised to pay when borrowing does not change because the value of money has changed. If he is using $20,000 of borrowed capital, he will have to pay back, not three-fifths of that sum—$12,000—but the whole $20,000. His debt has not shrunk though the value of his goods has. To pay his debt he will need so much of his goods as are *now* worth $20,000, which means so much of those goods as *were* worth five-thirds of $20,000, or $33,000. Hence he has lost the difference between $20,000 and $33,000, or $13,000. It follows that, in so far as the dealer works upon borrowed capital, a change in the value of money causes an inverse change in his profits: If the value of money rises he loses proportionately, and if that value falls he gains proportionately.

**Unequal Rate of Price Changes.**—Another element in this situation which compels a qualification of our original statement is

that *general price movements do not take place at an equal rate* all along the line. Some goods rise or fall more rapidly and more promptly than others. In particular, wages do not change as rapidly as general goods. It follows that a rise in prices,—a fall in the value of money—is likely to redound to the advantage of the dealer, in that he gets a larger return from the sale of his goods while his expenses for labor have not proportionately increased. And of course a reversal of the situation, that is, a general fall in prices, an increase in the value of money, works to the disadvantage of the dealer for precisely opposite reasons.

## IV

### Profits and the Significance-Disutility Principle

The attempt to establish the validity of our significance-disutility principle for each of the economic shares meets the greatest difficulty in the case of *profits*. As already explained, we mean by profits proper the return going to the man who takes the responsibility of ownership. We usually distinguish several different sorts, the nature of which is perhaps sufficiently indicated by their names. The most important are: ordinary, enterprise, speculative, monopoly, and accidental profits.

**Profits and Significance.**—One has no difficulty showing that profits *are in some sense or degree correlated to a service rendered,* a significance in economic relations belonging to the part performed by the receiver of the profits. Further, profits are undoubtedly *in some sense or degree proportioned to the significance or magnitude of the service rendered.* Thus, all must admit that those persons who initiate a commercially dubious, but socially important, enterprise perform a greater service than those who carry on the same in later years when success is assured; and, undoubtedly, the profits must commonly be larger for the former persons than for the latter. But, admitting a rough correspondence between profits and the service rendered, it does not seem possible to affirm quite the same degree of correspondence as in the case of wages, interest, and rent.

Where profits are *accidental,* the correspondence between services rendered and reward received is of course slight. Such profits do *not* tend to express the marginal significance of the receiver's contribution.

Monopoly profits doubtless correspond rather closely to the marginal significance of the supply of service *actually* rendered, but not to the marginal significance of the supply of service *which would naturally be rendered.* The monopolist, by limiting the output of his product, raises its marginal utility, and so its price, above the marginal utility which the product would naturally have. In doing this, he obviously raises his own profits above the amount which would express the marginal utility of his services, were no limitations set on their output.

One qualification must, however, be added. The monopoly which temporarily exists may have been *anticipated,* and may have been one of the necessary conditions which induced capitalists to undertake the industry in question. Hence we may say that the monopolistic output is after all the *natural* one and so that monopoly profit comes fully under the service-value principle. Cases of this sort are supplied by the legal monopoly of patents, copyrights and franchises, and by the quasi-monopoly of new enterprises. Here the extra profit does not correspond merely to the higher valuation by supra-marginal buyers of the service rendered, but also to the additional service. For, surely, there is an additional service when men undertake to try out the feasibility of a new enterprise,—giving the public an opportunity to see the real utility of the service or commodity which the enterprise supplies.

Yet in spite of this qualification of our first statement, economists are not generally disposed to affirm the service-value principle for monopoly. The presence of monopoly at any point more or less seriously interferes with the realization of the principle. Hence, assuming for the moment that the principle is a good one in an economic order, then monopoly, if necessary or permitted, ought to be regulated or controlled in the public interest.

The argument for enterprise profits has been more or less anticipated in the preceding paragraphs. Such profits somewhat resemble *prizes.* Many persons get nothing; a few get large rewards. Under

these conditions, we can scarcely expect profits to express with great precision the contribution of the profit-receiver. Yet we should not, on the other hand, imagine that the two are entirely divorced. Opportunities for exploiting novel enterprises are constantly arising; competition for such opportunities is kept fairly brisk; the goods produced must command prices expressing their marginal utility; the marginal contributions of the other factors are at the same time being more or less fully determined in other fields; and it seems not unreasonable to assume that the residuum of product—which constitutes profits—is properly credited to the entrepreneur as his contribution.

That *ordinary profits,* if they exist at all, tend to express the marginal significance of the entrepreneur's contribution, seems to need no further discussion. Here the elements of change and uncertainty are reduced to a minimum; so that the economic processes which tend automatically to secure each factor a share representing its contribution to the joint product, meet little hindrance.

**Profits and Disutility.**—We have seen that the significance half of our principle does not very clearly dominate profits. How about the disutility part? It seems plain that disutility would have little influence on accidental or monopoly profits. Ordinary profits, however, it would seem, must express with fair precision the marginal disutility of supplying the entrepreneur service. First, the demand of the public must insure for a product a price high enough to cover the disutility undergone by the entrepreneur; since otherwise production will cease, supply will fall off, and so price will rise. Second, the competition of entrepreneurs will keep price from going higher than the above point; since their numbers can be recruited at all times from those capitalists who merely furnish waiting power, who *lend* their capital rather than invest it.

In the case of enterprise profits, also, correspondence between the disutility and its reward seems necessary from the same reasoning, though here the correspondence is less precise. The objection is sometimes raised that there is *too much chance* in these cases to insure any particular result. Thus the price of a product may fail to cover, not only the peculiar disutility of the entrepreneur, but even

the ordinary outlay for material, wages, and capital; while on the other hand, it may cover all that outlay and give a surplus large enough to insure almost any conceivable risk several times over. This reasoning quite fails to recognize the real nature of the responsibility-taking disutility. It consists, not of a chance of loss to be covered by insurance, but of a chance of loss not to be covered at all. To induce men to incur that disutility, a prize or bonus, of larger or smaller magnitude, must be attainable in the event of success. The size of that bonus is roughly proportioned to the risk, though the unit of variation is very different for different races; and, having been fixed, it must be covered in the price of the product.

### Illustrative Problems

1. "Profits are the wages of management." Criticize. What is the test of whether any particular function is an entrepreneur's function—whether it is something for which profits are paid? What in the nature of the corporation as a form of business association makes "management" particularly inapt as a description of the peculiar function of the entrepreneur?

2. "Profits constitute nothing more than an insurance fund to cover the possible losses of the entrepreneur." Criticize.

# CHAPTER XLII

## CRITIQUE OF EXISTING SYSTEM: INTRODUCTORY

### I

### A Critique of the Existing Order a Legitimate Task of Economic Science

In the opinion of not a few persons, we have now reached the end of our proper task; we have covered the whole field which can be legitimately included in a purely scientific study of Economics,—the analysis of the existing economic order in respect to structure and functions. To go further and undertake to pass judgment on the satisfactoriness of the existing order, seems to these persons a plain transcending of our proper sphere. The title of the present chapter shows that the writer does not share that opinion. I consider it a very important part of the economist's task to study the present order in respect to its fitness or unfitness to realize the ends for which it must be presumed to exist.

**Argument.**—My principal reasons for holding this opinion are as follows: First, in dealing with the existing economic order, as with any structure to which the term "organism" can be applied, the most strictly scientific study—one which has no other end than a really adequate knowledge of the facts—cannot properly omit a consideration of the fitness of the several organs to perform well their respective functions. What physiologist, after determining the function of some bodily organ, would consider his task completed until he had made an attempt to learn the degree of efficiency attained by the organ in performing its function?

But the study of the working fitness or unfitness of the present economic organism has another and more practical justification. That organism, in both structure and function, is to a considerable

extent the product of consciously free arrangement. At many points, it is what it is because we make it so. Doubtless, this aspect of the matter can easily be exaggerated; the power of individuals or of society as a whole to alter the system in fundamentals can be, and commonly is, overstated. But, so long as this power exists in even a small degree, the student of economics is surely called upon to consider the fitness of the system, as at present constituted, to attain its proper ends. For where he finds it fit, he will wish to exert his power in support of it, and where he finds it unfit, he will wish to have it changed.

**Rival Candidates for the Task.**—It may be objected that, while we have here a problem which imperatively calls for solution, the task is after all one which does not properly fall to the economist. The solution, of course, requires economic data; but the problem itself is essentially an ethical or political one. Logical consistency, therefore, requires that the economist, while furnishing the needed data from his own science, should leave the problem as a whole to the men who can claim to be authorities in ethics or politics. There is no doubt some force in this contention; but it does not seem decisive. First, we must always remember that there is a degree of deference to logical consistency which spells pedantry rather than any practical good. Secondly, there are many problems in which elements from different fields of study are closely commingled; and a person who undertakes to solve these problems must weigh and pass upon the elements from every field. This means that such person must transcend in some measure the strict boundaries of his subject. But, if none of the persons interested can make an absolutely legitimate claim to the task, it would seem reasonable to turn it over to that particular one whose science furnishes the larger number and the more difficult of the data necessary to a solution. In the case before us, this condition is most certainly realized by economics.

**Superior Claims of Economics.**—Economics, then, would seem to be the science which would naturally essay the task of ascertaining how far the present economic order is fitted to attain the

ends for which it must be presumed to exist. We do not mean to suggest that moralists, sociologists, *et al.*, should be stopped from discussing this subject, but merely that economists can also discuss it, and perhaps with more propriety than any other group of thinkers. In further support of this contention we may remark that such practice is, on the whole, in accord with the best traditions of our science. Economists of standing, whatever their initial professions, have rarely failed to comment upon the workings of our system from the teleological standpoint and even to argue for or against proposed changes.

And it is probable that the instructed public give more weight to the verdicts of economists regarding such matters than to those of any other class.

## II

### The Question at Issue

In the preliminary account with which this course began, the existing order was represented as a coherent, rational whole, a system having different parts devoted to different functions, all coordinated into a great harmonious totality. At the same time, we saw that the organizing and regulating of this great totality was not conscious, but spontaneous, automatic; and that the particular economic process having most part in creating the great whole and regulating its operations, is exchange, and especially that element in exchange which we know as *value, price*. We explained, further, that it is price chiefly which determines what things shall be produced, how things, when produced, shall be utilized, and what proportion of the total product shall fall to the different participants in socialized production. In the present and succeeding chapters we try to answer, not exhaustively, but with greater fulness than heretofore, the question:

*How far is this automatically regulated economic system a success in attaining the ends for which it exists?* Does it accomplish in a fairly adequate manner *its special task: namely, providing for the satisfaction of human wants in so far as this is dependent on economic goods?*

## III

### Verdict of This Text

**Favorable.**—In view of the tone of many previous allusions to this question, it is hardly necessary to say that the answer here offered is on the whole an affirmative one. Broadly speaking, we look on the existing economic order as measurably realizing the ideals which, considering the limitations of human nature, it is reasonable to demand from such a system.

**Disclaimer.**—But in taking this position we wish to disclaim in the most emphatic language any intention of representing the present order as a perfect one, either theoretically or practically. Its ideals are below the highest, though necessarily so as we think; and its practice is at many points far below its ideals. Many of its failures grow out of the limitations of human nature; but not a few are needless—can be avoided. Increased interference with the actual working of things, both through private and governmental initiative—if for no other purpose than to eliminate elements which are, and always have been, inconsistent with the system—is imperatively demanded. Further, there can be no doubt that a degree of governmental interference going much beyond this, and limiting sharply the free working of those conditions which are most characteristic of the present order, ought to be, and will be, forthcoming in the near future. Whether in the interest of society as a whole or of those individuals on whom the existing system presses too hardly, we shall doubtless see a more extensive resort to governmental initiative, a greater limitation of the rights of property, a further restricting of the rights of inheritance and bequest, a distribution of tax burdens far more favorable to the poor, public provision for old age pensions, and so on.

**System in Main Outlines Satisfactory.**—In a word, when we defend the existing order we merely mean to affirm that that order is *in its main outlines* substantially sound, fitted to attain the reasonable ends for which such an order exists. Looked at broadly,

it shows itself to be highly efficient and as much in accord with our moral ideals as we could expect in view of human weakness, folly, and wickedness. The general plan of exchange-cooperation, involving private rather than public initiative, characterized by private property in capital and, for most purposes, in land, with production, consumption, and distribution regulated in general through a price resulting from free economic action, is more likely than any fundamentally different scheme to work in a measurably satisfactory fashion. Increased regulation and a more liberal admixture of socialistic elements may improve things; but the general system, the main framework, is sound and, as human affairs go, fairly adequate.

## IV

### Distribution Logical Starting Point of Critique

**What Wants Constitute the Economic End?**—In attempting to answer the general question concerning the satisfactoriness of the existing order, we begin a critique of that order in respect to *distribution.* The reason for this should readily be understood. *Men's wants lie at the root of any economic order; and, presumably, the satisfaction of men's wants is the object of such an order.* The ultimate test of an order, therefore, must be its success in satisfying these wants. But the phrase "men's wants" is ambiguous. Not all wants, surely, can be satisfied. As between lesser and greater wants, in the case of the individual, the satisfaction of the latter must take precedence. As between different individuals, we might set up any one of many standards. Thus, we might rate the importance of wants according to their *absolute magnitude,* supposing it possible to ascertain this. That is, we might treat any want, whether that of a person contributing much to the general advantage or contributing little, as having an importance exactly proportioned to its intensity. Again, we might recognize the *total* wants of every person as having *equal importance* with the total wants of every other person. Still again, we might treat the wants of different persons as having very *different degrees of importance,* according as the part played by these persons in economic matters is of little or of great importance. And many other standards might

be imagined, determining just what are the wants which we have in mind when we declare that the end of economic action is the satisfaction of "men's wants."

**Function of Distribution to Answer.**—But, not only is the phrase "men's wants" an ambiguous one, needing definition before we can proceed to pass judgment on the fitness of an economic order to accomplish its task—providing for the satisfaction of those wants,—*the process by which this defining is done,* the process by which society determines what are the "men's wants" that should be satisfied, *belongs to that part of economics which we have called distribution.* We could, indeed, conceive an economic order in which the state directly determined the importance of different wants and directly provided for their satisfaction in accord with that determination. Such a system has been tried more or less adequately at different times, and is usually designated communism. It is more or less fully illustrated in the life of the family. But the present economic order, as also the much-advocated system of socialism, solves the problem by authorizing a system giving to each individual a certain money income which he uses to buy the commodities or services which constitute his real income. In doing this, *the state determines the relative importance of the total wants of each individual over against other individuals* and leaves the determination of the importance of the different wants of the individual to be settled according to his own ratings.

**Hence Distribution Our Starting Point.**—But, if the goodness of an economic order must be judged by its fitness to secure the fullest possible satisfaction, in their proper proportion, of that body of wants which society has decided are the ones that ought to be satisfied, and, if such deciding by society is effected by maintaining a particular system of distribution, it follows that said system is the necessary starting point of any critique of the economic order in question. Once we have determined whether the system of distribution is or is not reasonable, the rest of our task is comparatively easy. The remaining parts of the economic order are good or bad according as they do or do not contribute to the realization of the

ends implicitly approved in the system of distribution,—*according, in short, as they are or are not consistent with, complemental to, the system of distribution.*[1]

**Qualifications.**—This broad statement of the matter doubtless needs various qualifications. Certain public or group wants are not provided for in the system of distribution, at least as we have treated it. But this qualification is manifest; and the state has no difficulty making its wants supersede all others, either by coming on the market with a buying power vastly exceeding that of any individual, or by the exercise of its absolute sovereign authority.

Another qualification is needed because the government, believing that it is desirable to modify in some particular the working of the system of distribution and despairing of being able to do this by *direct* means, may make use of its power to guide the employment of social resources *in order to accomplish its object by indirection.* Thus, as was noted quite early in our study, a characteristic feature of the present order, in its actual working, is the governmental practice of producing certain necessaries and supplying them to the public either gratuitously or at *a price below what would be possible under private initiative.*

In spite, however, of these and other possible qualifications, the soundness of the general proposition laid down above is incontestable. The system of distribution prevailing at any moment must be interpreted as embodying the decision of society in respect to the body of wants to be satisfied through the working of the economic order, and therefore embodying *the decision of society as to what are the true social wants arranged in the order of their importance.* If following the guidance derived from this system of distribution results in what seems, on other grounds, to be a wrong use of our resources, this must be viewed as an indictment, not of the process whereby production is regulated, but rather of the system of distribution which society has authorized. If amendment is needed,

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[1] This argument, when combined with that of the present and following chapters defending the present system of distribution, has been objected to on the ground that it involves circular reasoning. This objection will be commented on in Chapter XLVI.

that *amendment should, with few exceptions, be directed to the alteration of the source of the trouble, the system of distribution itself.* Accordingly, our critique of the present economic order begins with a consideration of the reasonableness of the system of distribution embodied in that order.

# CHAPTER XLIII

## CRITIQUE OF PRESENT PRINCIPLE OF DISTRIBUTION

The general principle underlying the present system of distribution, it will be recalled, runs somewhat as follows:

When competition is free, each individual tends to get approximately that income which expresses the marginal significance of the natural supply of the type of contribution made by himself or his property to the sum of utilities, and which, at the same time, expresses approximately the net marginal disutility involved in making that contribution.

Is this principle, on the whole, wise and just?

No adequate answer to this question can be made without contrasting the principle to be judged with possible substitutes. It will perhaps be best, therefore, to begin our critique by examining some of the more plausible substitutes that have been suggested, reviewing their merits, and, if such exist, their logical and practical defects.

### I

### Proposed Substitutes

**To Each According to His Need.**—One principle of distribution often highly commended is that which we try to realize in family life, as also in the life of the state during periods of greatest social exaltation. I mean the principle *that each shall receive of the common income in proportion to his need,—having given in proportion to his capacity.* This seems to have been, and to be still the formula of the highest type of communism. *"From* each according to his *capacity; to* each according to his *need."*

To the present writer there seems no room for argument as to the ethical superiority of this distributive ideal over all others. If

human nature were capable of maintaining it, no other formula would deserve a moment's consideration. But unfortunately there is reason, and perhaps quite conclusive reason, to doubt the sufficiency of human nature in this regard. Even those few hundreds of people who succeed in living somewhat near such an ideal in Amana and other communistic associations admit that their very limited success is made possible only because of certain intense religious sentiments which are common to all the members. And no one seriously believes that uniform sentiments of this kind exist, or can ever possibly exist, in more than a small minority of the hundred millions of men, women, and children who constitute the population of the United States.

**Labor Ideal.**—Another ideal which seems to have been more or less consciously held by many socialists of the earlier type, is that each person should share in the joint income *in proportion to his labor.* This of course can be differently interpreted. One may have in mind the *sacrifice* made or the *results* accomplished. And he may conceive the sacrifice as measured in a subjective standard or as measured in an objective one, like *time.*

In general, the socialists seem to have had in mind primarily the *sacrifice* of labor as measured by the *time* spent in applying it. Yet they tried to avoid divorcing this completely from results, by insisting that the labor must be labor which *produced things,* and *standardized* labor at that,—labor which in the given place and time was *"socially necessary"* to accomplish the result. Marx[1] further conceded that we could not treat all kinds of labor as exactly the same, though he would not admit *qualitative* differences. The labor of the artist and that of the mechanic must be treated as *differing in intensity,* or density, so to speak. That is, one hour of the artist's labor should be reckoned as the equivalent of, say, three of the mechanic's.

The labor ideal as thus interpreted, though not without points of merit, has fundamental defects which render it unworthy of extended discussion. Any scheme of distribution which can reason-

[1] The most eminent of the theorists who laid the foundations of socialism.

ably ask for society's favor must in serious measure *make economic reward conditioned upon economic significance, must make differences* of economic reward *correlative* to differences in economic *significance.* This Marx tacitly admits by refusing to reward labor which produces nothing useful, and by insisting that all labor must be standardized, reduced to "socially necessary labor." But differences in the economic significance of the several kinds of labor often show no correspondence either to labor time or to labor intensity. It is therefore quite out of the question that labor as measured in labor time, even when corrected for intensity, should be accepted as the principle of distribution.

**Social Service Ideal.**—Another conceivable ideal of distribution, more or less definitely held by many intelligent people, may be called the *social service ideal.* This idea differs from the one embodied in the present order in that, under the latter, each person receives a price which expresses the significance of his services to individuals *graded according to the buying power they possess;* while, under the social-service principle, a man would be paid according to the significance of his services to the group as a whole or to all individuals without any reference to their wealth or poverty.

This ideal has at the first hearing an extremely plausible sound. There is something particularly obnoxious in the fact that, under the present system, the power to furnish services of a very trivial sort, or even services highly immoral in their character, enables the owner to command a large income, because persons desiring such services chance to possess great buying power. It would seem much more equitable that one's income should depend upon the services of real worth which he renders direct to the humanity which is in all men alike, or to the worthiest needs and demands of the entire social group.

But further examination shows this principle to be seriously deficient. First, in so far as it concerns the group as a whole, the new principle is already contained in the one which governs our present system. The group is fully organized and, through the use of the sovereign power of taxation, can insure that group wants are satisfied at whatever cost,—can see in other words, that men are paid

in accord with the importance of the service they render to the group.

Secondly, the proposed ideal, as applied to individuals, is *self-contradictory.* For a principle of distribution simply cannot pay according to the importance of the service rendered without paying according to the importance of the service to individuals *graded according to buying power.* (1) Since men are to be paid in accord with services rendered, they are to be paid unequally. (2) This means that the effective demand for commodities and services will be unequally distributed. (3) But the distribution of effective demand will necessarily determine in what proportions people will actually *consume* goods. (4) But the only importance which can signify anything is importance to actual consumers. (5) It follows, therefore, that to pay for services according to their importance to individuals without discrimination as to wealth or poverty, is to pay for those services in accord with their importance to persons who do not get them at all,—a process which really amounts to paying for services *without regard to their importance.*

**Equality Ideal.**—The last ideal of distribution which we shall here discuss is that of *equality.* To each an equal share, but from all, service, is its motto. This is the more usual communistic ideal, and it is apparently favored by many socialists. Nor can we wonder at its popularity, for there is indeed much to be said in its support. The greatest discomfort from poverty—not the absolute want of the poor, but their contrast with more favored neighbors,—would, under such a principle, be overcome. Further, equality would not fail to bring a degree of satisfaction to many people, those who descended as well as those who rose, even if the equality were one but little removed from misery.

But, after all, this principle is quite impracticable. Equality in income, though serving well various sentimental considerations, would sacrifice to these the real, material welfare of all classes. Further, it would not even embody the ethical ideals which dominate practically the whole community. For, however people may feel toward interest, rent, and profits, they almost universally believe that wages and salaries *ought to bear some relation to service.*

**Need for Inequality.**—But the subject is too important to be so lightly disposed of. Are we right in saying that an attempt to enforce complete equality would sacrifice the real material welfare of all classes to mere sentimental considerations? In support of this view, there are three chief sets of facts.

**Efficiency in Important Functions.**—In the first place, giving some persons larger incomes than the rest of us may be directly required in the interests of the rest of us, in that *the larger incomes are necessary to enable those persons to perform efficiently the important tasks we have assigned them.* Thus no thoughtful person would contend that the people of the United States could afford to have their chief executive live on $1,000 a year, even if he were perfectly willing to do so. To perform at all well his services to the people of the nation, he must spend, on matters more or less personal in their nature, many times $1,000. What is true of the president of a great republic is true in only lesser degree of hundreds of other men. In fact, if we sufficiently narrow the circle of interested persons, it is true in a way for almost every male citizen. To the other members of his family, it is more important that the breadwinner, though the humblest of day-laborers, should be well fed than that the rest should be, because only so can he be fit to earn the income on which they all depend. But, of course, the point is more forcefully illustrated in the greater relations of society. To those men whose functions involve large responsibilities, intense mental activity, and great nerve strain, we must, for our own sakes, give large incomes, in order that they may prove resolute, clear-sighted, well-poised, and in other respects fitted for their great tasks.

The objector may say that we really have here a case not of better income, but rather of *collateral expenses.* Needs of this kind should be provided for as part of the *outlay of the office* which the man holds. If $1,000 is the best income the community can afford its members, the president, *as a man* must be satisfied with that income; though *on his office* we may spend $100,000. Doubtless something, perhaps much, could be done along this line; the writer heartily believes in employing such a policy wherever possible. But the whole difficulty could not be met in this way. A need is often so

*personal,* so individual, in character that it cannot be provided for save through a fund placed at the disposal of the person interested. One person requires one sort of relaxation, perhaps a very inexpensive one; another requires a very different sort, perhaps a very costly one. Further, the employing public (under socialism), whose opinion is greatly influenced by persons not in a position to judge of the personal needs attaching to the higher social functions, would commonly underrate those needs, as is shown in the niggardly salaries now paid public officials in democracies. In consequence, provision for this kind of need, if made in a formal sort of way, would probably be far too small.

**Proper Assignment of Factors: Disutility.**—The preceding paragraph has named *one* reason why inequality of incomes is necessary in the interest of the very persons whose apparent incomes would be raised by the abolition of that inequality. A second is found in the fact that unless incomes are unequal, they will not even approximately express the relative sacrifices which men undergo in contributing different services, and, so *will induce an oversupply of services which involve small sacrifices and an undersupply of the opposite kind.*

This difficulty has always been recognized by the creators of utopias; and to meet it a great variety of ingenious schemes have been devised. Thus, some writers have proposed that *conscripts* from all classes should have to serve a certain length of time in objectionable trades. Others have reserved these occupations for the *convicts.* More recently, we have had much stress laid on (1) *variations in the length of the labor day and* (2) *honor rewards.* An undesirable occupation might be made less unattractive by reducing the day from 6 hours to 4, or 3. So, attractiveness might be given the occupation by attaching thereto decorations and official rank.

Now, it seems highly improbable that these devices should have anything like the effectiveness which is anticipated from them. The honor device, especially, overlooks the fact that honors, to be effective as a stimulus to emulation, must not be *too commonly* employed. Gaining a prize is not worth while, if almost all the contestants gain prizes. Being a member of an academy which everyone can join

by paying $5, will attract people only so long as they are ignorant of the facts. But, whether these schemes are practicable or not, there can be no doubt that they are *inconsistent with real equality.* Why do I object to my neighbor's having a better income than I, supposing mine to be enough for a decent life? Mainly, it is because the spectacle of his enjoying advantages which I cannot enjoy detracts from my peace of mind. Now, what matter as to the source of these advantages? To see him watching the great national game, or comfortably lying in the shade, while I toil and sweat in the sun, would surely awake in me an unpleasant sense of contrast if these privileges were granted him as a direct reward for accepting some task, just as truly as they now do, when they come as an indirect reward for that same service. So, again, one of the greatest objections to the inequality of the present order is that it gives to the men of larger incomes a higher place in the estimation of their fellows, better social standing. Will this deeper sort of inequality be any less obnoxious when it is *directly* created than when, as at present, it is the indirect result of inequality in money income?

**Proper Assignment of Factors: Significance.**—There is still a third reason—and this is the weightiest of all—why people generally, considered as consumers, must in their own interest prefer that some other persons should receive better incomes than themselves. There must be inequality of incomes, some contributions must command much higher prices than other contributions, because *only in this way can it be made certain that society will make the best use of its resources,* its productive capacities.

In an earlier discussion it was shown that, in a world like ours where different kinds of primary factors, limited in amount and capacity, enter in different proportions into the production of different commodities, *each of those kinds of factors will have its own special significance* or importance as determined by its contribution to the production of goods. Further, under the present system of free private initiative and exchange, *insuring that each factor has a price which expresses approximately its true significance is accomplished automatically.* Now, *by some process or other, the same task must be performed under any system of economic* organization

—communism, socialism, or what not. For, otherwise, we could have no assurance that we were making the best use of our capacities.

**Proper Valuation of Services Necessary.**—First, the mere *assigning* to things of their proper prices would be necessary under socialism no less than under the present order, *as a part of the public system of bookkeeping.* For, if the state were to become the sole landlord, capitalist, and entrepreneur, it would be obliged to carry on an elaborate and complete system of bookkeeping in order to have at hand the knowledge of conditions necessary to a reasonable conduct of economic affairs; and, in this bookkeeping, the state would need to credit each primary factor with the true significance of that factor, since, otherwise, it would frequently waste important factors on unimportant commodities. In short, whether or not men were actually to receive unequal incomes, *they would have to be credited with unequal contributions.*

**Corresponding Income Probably Necessary.**—But when each person has been credited with the true value of his contribution, can it be doubted that, under any system which is in the remotest degree practicable, that value, or something approximating it, would have to be paid to the man who made the contribution? We say "under any system which is in the remotest degree practicable"; for one might admit that a despotically organized communism, effecting and regulating cooperation through *authority,* could "exploit the workers"—to use a socialist phrase—could give equal remuneration for very unequal services. But surely no communistic plan yet proposed is to be taken seriously. We need, therefore, to consider only socialism. Would that system of economic organization be driven to pay men in proportion to their contribution?

**True Under Socialism.**—The answer is surely an affirmative one. We could, indeed, *conceive* a socialist state which at first thought would seem able to avoid the necessity of adjusting reward to contribution; I mean a state conterminous with the earth and organized as a completely centralized despotism. Such a state might

seem to be emancipated from all necessity for paying its workers according to any standard other than its own will, because competition would have been completely eliminated. As a matter of fact, however, I doubt if even this vast despotism would be able to exploit the capable in the way supposed, and that for two reasons: (1) the capable would probably be in power, and (2) whether or not, they would know their own importance and, by a refusal to work for less, would compel the authorities to raise their pay till it approximated the real value of their services. But it surely is wasting time to build upon the fantastic assumption of a cooperative commonwealth coextensive with the earth and organized as a completely centralized despotism. If we ever have a collectivist state, it will be one among many sovereign states, and one in which local autonomy, municipal and provincial, still exists. It will, therefore, be a state in which *competition* still exists. Different municipalities, different commonwealths, different sovereign states will more or less vie with each other in trying to attain the highest efficiency, and so will drive one another into paying the persons who supply the different kinds of productive services something like what those services are worth. But, in doing this, they will of course make the shares of these persons in the social income unequal.

In short, while inequalities in distribution need not always be so great as they are today, while they would be much reduced under a socialist régime and no doubt *will* be much reduced under the present régime—still, inequality of some degree is inevitable. The ideal which would give to each citizen an equal share with every other is quite out of the question. The remuneration received by each must bear some relation to his contribution.

**Summary.**—Finally, as a general result of the discussion in this entire chapter, what do we have? We have examined all the chief substitutes for the existing principle of distribution that have been proposed; and while we have found them commendable in many respects, and especially as regards their humanitarian purpose or intent, we have also found them one and all, on the whole, impracticable,—it is doubtful whether, for the present at least, they can be established. This being true, it is virtually certain that the

existing principle, with possible modifications, will for some time be continued. It therefore becomes of the first importance to determine whether that principle, since it needs must be endured, is any more defensible than these others. To that task we shall turn in the following chapter.

## II

## Defense of Service-Value Principle

We have tried to prepare the way for a defense of the existing system of distribution, especially in respect to its general principle or ideal, by showing the impracticability of the ideals which have been proposed as substitutes for the one dominating the present order. We now undertake a brief defense of the general principle of the existing system, leaving to the succeeding chapter a defense of the more prominent features of the system of distribution that appear in the working out of its principle.

**Service-Value Principle Necessary.**—That, under any social order which retained any degree of individual liberty and local self-government, the acceptance of the service-value principle or ideal would be practically necessary in the interest of mere economic efficiency,—has already been established in showing the impossibility of the equality of the ideal. Even under socialism, we should be driven to pay men for their services in substantial accord with the effective importance or value of those services; for only so could we assure the assignment of those services to their proper tasks. We shall now comment briefly on special objections to the dominance of this principle.

**Generic versus Specific Utility.**—There appears among many people a disposition to criticize the ruling principle of distribution because it pays men in accord with their *effective* or *specific* utility rather than their *generic* or *class* utility. Thus, the utility of coal miners as a class is surely far greater than that of high-grade singers as a class; but society pays a miner for an hour's work, perhaps, 40 cents, while it pays the singer for an hour's work, perhaps, $2,000. This objection always arouses a sympathetic response in the popular mind; but to the student who has acquired a fuller compre-

hension of economic relations, it is quite without point. A person who puts forward this objection really admits by implication that it is right to have men paid *in accord with the importance of their services;* he only complains that we *set the wrong standard* for judging importance. But his complaint is of course a mistaken one. The real importance of any man is his *effective* importance,—*what we should lose if we lost* him, not what we should lose if we lost *his whole class.* For usually the alternative facing us is, not keeping or losing the whole class, but keeping or losing an individual of the class.

And what we lose by losing any individual of a class is only the utility of the least useful of the class, since the loss of any higher utility would be avoided by transferring the least important member of the class from his present task to the higher one.

**One's Own versus Marginal Utility.**—Another familiar objection to the service-value principle is that it pays a man, not in accord with *his own specific* utility, but in accord with the utility of the *marginal member of his class.* Thus, a man may be performing some service for which his employer is glad to pay him, and does pay him, $2 a day; when, without any fault on his part, an increased supply of labor comes on the market and lowers the marginal utility of his class to $1.50 per day, with the final result that, though still performing the $2 service, he now gets only $1.50. Viewed from this man's standpoint the situation naturally makes a powerful appeal to one's sympathies. But what about the incoming man? He surely cannot be paid more than the $1.50 which he really earns. But, if the first man continues to get $2, while this second one who is working just as hard and is perfectly able to replace the former gets only $1.50, our sense of justice would be outraged just as much as in the former case.

But, again, the objection is quite untenable logically. As we said above, if a man is to be paid in accord with his importance at all, the importance in question must be his *real, effective* importance. But the *real, effective* importance of a man is determined, not by the importance of the thing *he* accomplishes, but by the importance of the thing which *the marginal member* of his class accomplishes.

**Justice versus Mere Economic Value.**—Probably the misgiving which most persistently recurs to all of us concerning the service-value principle, is that to defend or even patiently accept it one must be somehow too *cold-blooded,* too insensible to considerations of sympathy, humanity, love of one's fellows. When one is exercising his logical faculties on mere abstractions or is dealing with mere things, he can recognize the working of an inflexible scientific principle without a qualm. But here the interests at stake are the incomes and, therefore, *the happiness of living human beings.* Is there not something inherently shocking to our moral sense, even to our sense of mere decency, in the advocacy or adoption of a principle which places interests like these at the mercy of so unmoral a thing as the law of supply and demand, or the law of marginal utility? Does not every right-minded man respond with full approval to the belief expressed by Mill that a time will come when the division of society's product, instead of being a matter of automatic, mechanical, regulation, *"would be made by concert on an acknowledged principle of justice?"* In fact, is not this whole attitude of mind which conceives human beings as mere instruments, mere *things,* inherently wrong? Must we not rather at all times conceive human beings as ends in themselves?

Now there is surely some force in all this. We saw in the preceding chapter that it is *at least possible to imagine* a principle different from, and higher than, the one now operative. We believe also that the working of the principle in the actual order can be greatly improved by changes which would better satisfy the demands of moral and humanitarian sentiment above alluded to. And we believe that its worst tendencies could be, and are, not a little offset by a secondary distribution through voluntary benevolence and the use of the taxing power,—all this in obedience to the same moral and humanitarian sentiment. But, when all is said and done, we can only imagine a radically different system—not really establish it. We can only modify the working of the present principle, not overthrow it; we have no choice but to submit to the principle as it is. Whether the principle shocks our sentiments or not, therefore, the least we can do as scientific students is frankly to recognize its reality.

But in fact there is no good reason why the existing principle of distribution should offend our moral sentiments. Rather, the contrary. If the service-value principle is the only one which can sustain society from falling into the poverty and misery of communism, then it would not be difficult to make out a case showing the principle to be positively humanitarian. Nor need we, in the second place, feel too keen a response to the notion that it is wrong ever to conceive of human beings as *functioning* in some relations *like mere instruments or things.*

There is nothing *per se* unworthy or degrading in taking one's turn at being a mere thing in economic society. Doubtless we all ought to have our opportunity to live for living's sake, to be ends rather than means. But this is perfectly consistent with our being, much of the time, *mere means to an end.* Further, it is quite easy to overstate the case. Men are prone to overemphasize their right to be "ends in themselves." Most men of mature years have learned that, in the long run, scarcely anything is really worth while, even from the purely selfish standpoint, except to set oneself a suitable task and endeavor conscientiously to perform it.[1]

[1] By a curious inconsistency, people who emphasize this objection seem to have no sensitiveness on the matter, *provided the station in which one serves as a mere means is sufficiently dignified.* We hear nothing in this vein when they are speaking of doctors, lawyers, professors, politicians, and others of the higher classes of workers, though of course these persons are, on the professional side, mere instruments, mere things, just as truly as the common laborer.

# CHAPTER XLIV

## THE PROPERTY INCOMES INDESTRUCTIBLE

In the preceding chapter we defended the general principle or ideal of distribution embodied in the present system, as being necessary to social welfare, and, on the whole, reasonable and just. But this leaves much of our task unaccomplished. The service-value principle might be all right, abstractedly considered; but *it can be realized only under a concrete set of conditions.* It must work itself out through definite institutions, legal prescriptions, customs, economic laws, and so on. As thus working itself out, is it defensible? The conditions in question, as we know, are very numerous and complex. To cover the whole matter thoroughly is of course quite beyond us. We must content ourselves with some consideration of the most important points.

Primary economic distribution, as we have seen, depends chiefly on the kinds of shares or sources of income which are permitted and the natural laws determining the volume of these shares. The former of these two conditions depends largely on *what kinds of property are permitted:* especially whether private persons may or may not own capital or land. The latter is the general principle of distribution we have already considered. We shall consider mainly the legitimacy of the shares or sources of income by which *primary* distribution is determined, more especially *the three property incomes.*

As preliminary to the defense of the existing system, I propose to use the present chapter to show that the three incomes in question *are indestructible.* They cannot be eliminated; and they must affect the distribution of the total social income whether we believe in them or not. We may alter their destination, but we cannot annihilate them. In making the argument for this point, I shall assume the existence of a socialist order; since, if these incomes

are bound to exist under such an order, few will doubt the proposition that they will continue under *any* order. We will first take up the case of rent.

## I

### The Maintenance of Rent Inevitable

That rent would necessarily continue to exist under any economic order, supposing the condition necessary to create it—the inadequacy of the land to meet the need for it—to continue, is a proposition from which there is little, if any, dissent. Economists are apparently agreed on the point; and even the reformers who deny the legitimacy of a system which permits private persons to appropriate this income, usually admit that it must exist, though they would transfer it from private landowners to the state. The reason for this unanimity is plain. Rent is a surplus arising, not through any act of man, but through the fact that the natural amount of land and its capacity to assist in the production of commodities is so limited as compared with the demand for those commodities that the latter necessarily have a value greater than their costs other than rent, and so a surplus is created. By no conceivable process can that surplus be destroyed, though, of course, its destination can be altered.

**Objection.**—But it is possible that someone might be inclined to demur from this matter-of-course settlement of the question. "Whatever may be the ultimate condition necessary to create rent," the objector may say, "the condition immediately necessary is the existence of *high prices* for land products, prices higher than costs of production on the rent-bearing lands. But, under socialism, prices are things to be *fixed by the government.* Would it not be possible, therefore, for government to destroy rent by so changing the prices of land products as to destroy the surplus from which it springs? Thus, if the government were to fix for each parcel of wheat a price exactly equal to the cost of that parcel, instead of having just one price high enough to equal the marginal or greatest cost, there would be no surplus and so no rent."

**Answer.**—This sounds well; but it will not hold. The proposed policy would not destroy the surplus, but *merely transfer* it from the landlord—under socialism, the state—to consumers of those parcels of wheat which were raised on better lands.[1] If the marginal portion of the wheat crop costs $2 and continues to be produced and sold, it must be worth $2. But, if the marginal portion is worth $2, the other portions must also be worth $2, even those which cost only 50 cents a bushel. Hence, the government which should charge a price of 50 cents for wheat which cost only 50 cents, would, in effect, make to the buyer of that wheat a present of $1.50, that is, would make him a present of the *rent* on the land from which his wheat came. There can be no doubt, then, as to the soundness of the common doctrine that *rent must exist under any economic order as an income divided in some way among the citizens.*[2]

## II

### The Continued Existence of Interest Inevitable

The contention that, under socialism and so under any system, interest must continue to exist as an income to be enjoyed by some person or persons,—this contention has not been so generally accepted as the analogous one with respect to rent; but it seems no less certainly true. Interest represents a real advantage, a real service, derived from the power to wait, which advantage or service has marginal significance or importance because the supply is not sufficient to satisfy all needs for this service, and, having marginal significance, therefore has value. This being true, only those products which had a marginal significance great enough to justify their having a value which included an allowance for interest—the

[1] The share going to each of these consumers would, of course, vary with the goodness of the particular piece of land on which their parcel of wheat was raised.

[2] Most advocates of socialism would probably favor maintaining one price for wheat and having the state absorb the resulting rent. It is not unlikely, however, that a socialist government, which would almost of necessity be democratic, would manipulate prices somewhat in order to show special favor to the consumers having smaller incomes,—supposing such a state to permit income differences.

value of waiting—could legitimately be produced. That is, so long as the condition causing interest—the inadequacy of the supply of waiting-power to satisfy all the need for that waiting power—continued to exist,[3] interest would continue to exist. It might be hidden, it might be consciously transferred from the owner of the waiting power to some one else, it might be ignored; but it could not be eliminated. Some person or persons would necessarily enjoy it.

But possibly someone might bring forward an objection analogous to that remarked on in the case of rent. If interest under socialism would be implicit in the prices of commodities, could not the government destroy it altogether through its control over the fixing of prices? Thus, if the prices of products were lowered so as to cover only the costs other than interest there would be none of this interest implicit in prices. Quite true, but not germane. It would not be in the price, but it would still be in the *value*. Consumers would enjoy advantages for which they had not paid, that is, they would be the recipients of the particular income under consideration, interest. Further, the plan would involve much discrimination in the way in which this income was distributed among consumers. Those persons calling for goods in the production of which waiting plays a large part would get the lion's share of the interest income, the rest would get little or none. Thus, the plan proposed for eliminating interest would merely transfer it from the state to specially favored consumers.

## III

### The Maintenance of Profit Inevitable

That profit must continue to exist under any economic order is somewhat less certain than the analogous proposition with respect to rent and interest. Some types of profit now familiar would

[3] We are not here concerned with the question whether the situation which now insures the existence of interest would continue, but whether, even with that situation continuing, interest would necessarily continue,—whether, in other words, interest could be eliminated by some arbitrary change in the system or in its management? The answer is an emphatic negative.

probably disappear altogether. Further, the most important constituent of profit, the one growing out of risk, would be greatly diminished in amount, and what remained would in large measure be transformed into other types of income. As a result, the total of what may be called profit in the strict sense would be much diminished. Nevertheless, the share now called profit would have its counterpart even under socialism, and, though a portion of this would be transformed into other types of income, there would remain a portion which retained its own distinctive character.

The argument for this contention is substantially the same as in the preceding cases. Profit corresponds to a service which must be performed if production is to go on at all. If we are to have meat or clothes or shelter, someone must assume the responsibility of producing these,—must use up his goods in the venture, accepting, in place of those goods, the resulting product. This function might be performed by the government, as under socialism, instead of by private persons, as at present. But performed by someone it must be. Further, the power to perform this function must obviously depend on the possession of surplus wealth, capital, and so must be limited in amount. No one surely would claim that our wealth could ever be so great that we could afford to undertake the production of anything men might desire, however great the risks of failure. There would always be wants clamoring for attention, provision for which would be impossible because, with our limited resources, we could not afford to take the chances. That is, *the power to assume the responsibility of production would have extra-marginal significance and so would have value.* In consequence, if the production of one of two given commodities involved greater risk than the other, though their costs in other items were the same, the one to which the greater risk attached *would need to have more value* than the other to justify its production instead of the other. In other words, *there must be an element in the value of any product corresponding to, representing, the risk taken in its production. That element is the real profit,* implicit profit we may call it. As a real value the presence of which is made necessary by the conditions of the case, *its elimination is impossible, if production is conducted as it should be, though*

*its destination can be changed.* Thus, as in previous cases, we might omit from the selling price of a given commodity the part which would correspond to the profit element just described, and it seems probable that many advocates of socialism would favor such a procedure. In doing this, however, we should *not be destroying profit, but only making a present of that profit to the consumers of the particular product in question.*

The above argument shows that, even under socialism, there would necessarily exist an income corresponding in a general way to what is profit in the present order. Under socialism, however, as was indicated at the outset, a considerable portion of this particular income would naturally be transformed into the other types previously considered, namely: wages, rent, and interest. The reason is as follows: Since, under socialism, the state would be the sole entrepreneur, all losses of whatever character would immediately fall on the state. That is, the existence of such losses would merely mean that the total outlay of the sole producer in carrying on the industries of the community—his outlay in labor, natural resources, and waiting-power—had been made just so much greater than it would have been if the losses had not occurred. Doubtless, there would necessarily be a value, and so an income, representing this excess of cost. But such value and such income would be assignable, not to some new type of income, but to one or more of those previously considered: wages, rent, or interest.

We have argued in the last paragraph that, though the income which now appears as profit would largely survive under socialism, it would after all survive, not as a distinct type, but rather as an addition to wages, rent, and interest. To this, however, it ought to be added that there would probably remain under socialism *a residuum of profit in the strict sense,* an income not capable of assignment to one of the other three. The reason for this is that, in the long run, the socialist state would insist on making a charge for products sufficiently in excess of probable losses to insure coming out even; and, in doing this, the state would take to itself a type of income *closely analogous to pure profit under the present régime,* and one which could not be brought under any or all of the three other types.

# CHAPTER XLV

## THE PROPERTY INCOMES AS INCOMES OF PRIVATE OWNERS

It has been shown in the preceding chapter that rent, interest, and even profit, in some degree, are bound to be present under any economic order as incomes enjoyed by someone. This quite obviously does not prove that they can legitimately be assigned to the classes of persons now receiving them. It does not even contribute any definite argument in support of such a contention. Nevertheless, the time spent establishing this point does not seem to me to have been wasted. In the first place, this aspect of the matter greatly impairs the force of *a certain method* of attacking the legitimacy of the present assignment of the incomes in question which has had much vogue in our day. That method consists in representing all economic institutions and arrangements as temporary, provisional, almost accidental. Capital itself, and of course the incomes springing from it, are "historic categories." That is, they have no roots in the very nature of things—they have not always existed—they are the product of special, social, or legal arrangements. Such an account of the matter does not, of course, really constitute an argument against the present treatment of these incomes; but it has a sort of dissolving effect on the convictions which have been held on these points. If capital, interest, and profit are categories representing things altogether temporary, things invented and established by man, it is very easy to slip into the notion that the particular disposition of these which obtains in the present order has no presumption in its favor, that such disposition is purely artificial and arbitrary, can be swept away without hesitation as having no claim to serious consideration. Against such a dissolving doctrine, this text has tried to guard the student from the very outset. There is nothing or next to nothing in it.

Capital is not a historic category; interest is not; profit is not. With scarcely a shade of exaggeration, we may say that there never was a time in the history of civilization when they did not all exist. They have their roots in the very nature of things, not in the artificial enactments of men. Any weakening in our support of the present system derived from the opposite notion is unjustified.

A second advantage to be derived from the establishing of the doctrine that the three property incomes are indestructible, cannot be eliminated, though their destination can be altered, is that it *isolates sharply the real issue before us,* that is, the question whether or not the private appropriation of these incomes is legitimate. That question we must now attempt to answer.

**Doctrine Here Maintained.**—The conclusion on this point reached in the following discussion is on the whole favorable to the present order. In maintaining that position, however, I wish to disclaim most emphatically any intention of affirming that the present assignment of the incomes in question is the only reasonable or just one. There is no room for doubt that, if society should come to believe it expedient to abolish private ownership in land and capital, and so to abolish the private appropriation of the incomes derivable from these sources, it would be entirely justified in carrying out such a policy. There are no private claims so sacred that they can stand against the claims of the general welfare. Again, I wish to disclaim any intention of affirming that all of the three property incomes and all types of each are equally defensible. It is easier to maintain the legitimacy of some than that of others. It would be easier to make a case for giving these incomes to the state in some cases than in others. In contrast with the more extreme claims for the present order which are sometimes made, what we here contend for is merely this: *The present assignment of the incomes in question is not inherently unreasonable or unjust: the not uncommon contention of even moderate advocates of reform that the private appropriation of any income not derived directly from personal exertion is something very like robbery, thoroughly wrong under any condition,—this contention is entirely unsound.*

It may perhaps seem that a defense of the present order which contends for no more than the proposition just laid down, would scarcely be worth while. If it be admitted that the state can without injustice take from private persons the right to receive the incomes in question, we may be quite sure, the objector might say, that would-be reformers would in time persuade themselves that there is ample reason for adopting such a policy. Personally, I am not in accord with this view. It has always seemed to me that the strength of the socialist movement largely consists in *the acceptance of a grossly unfair indictment of the present order.* Men honestly believe that, from the very nature of present arrangements, the capitalist, however honest or benevolent, cannot help exploiting, or robbing, labor. The acceptance of such a doctrine makes the masses "see red." Convince them that it is an erroneous doctrine, and you will have done much toward eliminating their desire for a new régime. In any case, you will have diminished the intensity of the emotional forces working for the movement, and will have thereby contributed toward a more temperate and reasonable alteration of the existing order, if altered it must be.

## I

### Criteria for Passing Judgment on the Legitimacy of a Particular Assignment of the Property Incomes

In passing judgment on the legitimacy or reasonableness of any social institution or policy, it is obviously necessary to have in mind some standards or criteria of such legitimacy. Doubtless there is room for difference of opinion as to the true criteria for the case before us; but I shall assume with little argument that the following propositions are fairly adequate.

(1) In determining the proper destination of so much of the value income as expresses the contribution of a given factor, there is *a presumption in favor of the person responsible for the existence of such factor,* when such person exists.

(2) When no person is responsible for the existence of a given factor, for example, in the case of the factors commonly covered by the designation, land, *the presumption is in favor of men generally,* or *the community as a whole.*

(3) The valid claim of any person *can be completely alienated* by that person and completely acquired by another person through an act of exchange, sale and purchase,—it being assumed that said exchange was on equitable terms approved by the state. Thus, if a person catches a hundred fish, his claim to property in those fish *because* he caught them ceases to have any validity after he has sold them.

(4) *The state,* as the guardian of the welfare of all and *holding in trust the residual claims of all* which grow out of the contributions to production derived from factors not appropriable or not appropriated, for example, the fund of accumulated knowledge, the protection of government, etc., has the power and right to confirm, *limit, or cancel all presumptive claims as may seem wise, and the power to alienate its own claims.* Thus, if it seems on the whole best, the state can without injustice abolish the right of private persons to receive the interest income, even though it be admitted that such destination of interest has presumption on its side. On the other hand, granting that the state, as representing men in general, has the best presumptive claim to the rent income, still the state can, without wrong, alienate that income to private persons, if there seem to be adequate grounds in expediency for such procedure.

**Defense of These Criteria.**—Since the acceptance of these propositions would render needless any prolonged consideration of the reasonableness of the individual incomes, we must take a moment to comment upon them. The first would probably lead to little controversy, being a widely accepted doctrine of very ancient origin, and one favored by the opponents of the present order, as well as its supporters. As to its general validity, there would seem to be no serious reason for doubt. To have been responsible for producing a thing, if it does not create an absolute claim to the services or contributions of that thing, must certainly create a *presumptive* claim of this character.

The second proposition would seem equally certain. Doubtless man's *need* is, in some sense, the most ultimate ground of the *right* of property in things. But this ground is common to *all* men

placed in the same situation; and, in the absence of any presumption in favor of special persons, the state, as representing *all,* could surely set up the best claim.

The third proposition is too evident to need argument. To have produced a thing could not continue to be a valid ground for claiming property in that thing after it had been relinquished in legitimate exchange. Controversy might always arise as to whether the price paid in the exchange had been a fair one; but this is a matter for regulation by itself. It ought not to be confused with the question of *title to the thing sold.*

The fourth proposition would not receive so ready assent as the third. In fact, it would doubtless meet opposition from both conservatives and radicals. The former would deny that the state can legitimately limit certain fundamental property rights at all, for example, the right of capitalists to control entirely the disposal of their capital. Radicals, on the other hand, would deny that the state could ever legitimately alienate its property rights in land and natural resources. Nevertheless, the proposition, as originally laid down, seems a necessary foundation for any adequate social order. It must always be the right and duty of the state to *establish and maintain such social and economic arrangements as seem necessary to secure the best results for society as a whole.* If, then, the state becomes convinced that, however natural and reasonable it may be to permit private property in capital and the private appropriation of the income thereof, yet, everything taken into account, such a system works much more evil than good, the state must surely be bound to abolish that system, in spite of the presumptions in its favor.[1] On the other hand, if the state becomes convinced that the best good of all demands the alienation of its claims on natural resources to private persons, such action is surely within its sovereign prerogatives and duties.

[1] The right of private persons to use any wealth to which they have a valid claim, in initiating and guiding industrial activities, is surely no more reasonable on its face than the right of the same persons to use that wealth in buying such consumption goods as they may desire. Yet practically no publicist of standing would deny that it is within the prerogatives of the state to limit the latter right, and, in some cases, to abolish it altogether.

## II

### The Legitimacy of a System Which Permits the Capital Incomes to Be Appropriated by Private Persons

In view of the preceding discussions, little more seems needed to establish the proposition that there is nothing inherently unreasonable in the present destination of the capital incomes, that is, their being appropriated by private persons; that, on the contrary, such destination has in its favor a most evident presumption. Capital as capital—the power to wait and to assume the responsibility of production—is a *product* and one for the existence of which private persons are commonly responsible. In order that it should come into existence, someone must produce an income and, through saving from that income, accumulate a surplus. Nor is this reasoning invalidated by the consideration that the particular person now enjoying its incomes obtained that capital through fraud or violence or inheritance. Such considerations are beside the issue. We are here concerned only with the reasonableness of the capital incomes *per se*. In affirming that the private destination of these incomes has a presumption in its favor, because the person receiving those incomes produced the capital from which they spring, we are not called on to defend such a destination of profit and interest, *when admittedly this reason was not present*. Of course, no one contends that a man who has obtained capital through fraud or violence ought to be permitted the enjoyment of its incomes. As to whether there can be any legitimate bequest or inheritance, opinion is not unanimous. But, in any case, the matter does not concern us. In the typical case, the capitalist is responsible for the existence of the capital; and the presumption is that, because of that fact, he has a right to its fruits.

**The Laborer's Claim.**—But the opponents of private profit and interest would not be content without setting up some other claimant over against the capitalist himself. A fairly complete enumeration of possibilities would perhaps give us three, as follows: (1) the laborer who works with, utilizes, the capital in

question, (2) the consumer of the particular commodities in the production of which the capital in question is utilized, and (3) the citizen or member of society in general. The first of these, as everyone knows, is the favorite claimant. The basis of his claim is the doctrine that laborers only contribute to the production of commodities. I trust we may safely assume that this doctrine has been completely disposed of in preceding discussions. Capital *as capital,* not merely capital as the embodiment of previous labor and other factors, is *a real factor in production,* makes a contribution of its own to the total result; and the importance of this contribution is more or less fully expressed in the price paid therefor. The laborers who have been engaged in utilizing said capital did not make the contribution in question, and have no more claim on the incomes expressing the importance of that contribution than have any other members of the community.

**The Consumer's Claim.**—The case against the second claimant, the consumer of the particular commodity in the production of which the capital was utilized is equally plain. As was explained on page 527, such destination of the capital incomes could be brought about by omitting these elements from our cost calculations when deciding what price should be charged for any given product.

But against such a policy two strong objections would present themselves. First, there is nothing whatever in the status of the consumer as such on which to base a claim to these shares. On the contrary, the very nature of his position naturally calls on him to *pay rather than receive.* He enjoys the utilities derivable from the product; he should fully make good its costs. In the second place, distributing the incomes in question to consumers by omitting profit and interest from prices would necessarily involve a wholly baseless discrimination among consumers. For waiting and risk enter into the production of different commodities in quite different proportions, and these commodities enter into the consumption of different citizens in quite different proportions; hence, some persons would be large consumers of products costing much waiting and risk, and so would gain much from the generosity of

the state, while others would consume but little of such commodities, and so would be small gainers from this policy.

**The Citizen's Claim.**—There, then, remains only the third possible rival to the capitalist as the legitimate claimant of interest and profit, that is, the citizen in general. As against the claims of either of the other two rival claimants, this one of the citizen in general is surely the best. The claims of the laborer and consumer have *no* foundation; for that of the citizen in general, *some very slight* basis may be discovered. The citizen in general is the residuary legatee of all rights, advantages, for which a truly legitimate claimant cannot be found; for he stands for humanity in general, is the inheritor of the knowledge and skill brought down from the past, and the maintainer of the political and legal institutions essential to all economic life. Nevertheless, it is surely little short of absurd to argue that the claim to the capital incomes set up by *the mere citizen* who has had no share in producing that capital is as good as that of those persons who are *just as much citizens as himself* and, *in addition, have really produced the capital.* Surely the claims of the latter have a strong presumption in their favor, though, as so often admitted, they may be overridden by weighty considerations of public advantage.

### Illustrative Problem

The medieval church attempted to eliminate completely the taking of interest, but thought it right for capitalists to gain a profit from the conduct of business enterprises. Can you see any reason why the case for profit would seem to be better than that for interest?

## III

## The Legitimacy of Rent as a Private Income

It is manifest that the right to receive rent, the income which represents the marginal importance of the contribution made by the land, cannot be defended on the ground brought forward in the case of the capitalistic incomes,—the ground, namely, that the receivers of the income in question are responsible for the existence

of the source from which that income springs; for, broadly speaking, land is not producible. Again, this fact that land is not producible means that the presumptive title to this factor belongs to the community, the state. It follows that private persons can obtain a valid title, if at all, only through the grant of the state. The real question, therefore, is this: Can the state legitimately alienate its title to the land, or, anyhow, its title to the income of the land? An affirmative answer to this question seems inevitable.

**Alienation and Social Expediency.**—First, it is scarcely to be doubted that the state could make such renunciation of its rights on non-economic grounds, grounds of *political or social expediency.* Thus, it may be argued that an almost indispensable means for insuring stability in the social order is the presence of a considerable class rendered peculiarly interested in the maintenance of such stability, and peculiarly likely to develop the habits and dispositions which render it well fitted to maintain that stability; and that one of the best methods of developing such a class is to establish a system of private property in lands used for farming purposes. Such an opinion has long been held and has long influenced powerfully the action of governments. Whether sound or not, this opinion would seem to justify the corresponding action on the part of the state; for the state has no choice except to act in accord with its best judgment in trying to secure the best good of all.

### Illustrative Problem

The policy pursued by the leaders who reorganized society after the dissolution of Roman political civilization of making huge grants of land to their chief subordinates doubtless contained the seeds of many abuses. Nevertheless, much is to be said in favor of the legitimacy, almost the necessity, of instituting such a policy. Defend the latter statement.

**Alienation and Economic Services.**—But, again, it seems plain that the state could legitimately renounce its natural right to the land and its income, in return for *economic* advantages or services which, in the opinion of the public, were worth the price.

One of the most familiar and universal cases of this kind is furnished by the practice prevalent in all ages of granting a more or less complete property right in land to persons who opened up, cleared, or otherwise *brought into a productive state lands hitherto unused.* Scarcely distinguishable from this case is one which arises when governments make grants of lands in order to develop the country as a whole, swell its population, expand the market for the manufacturing and commercial industries of the older parts of the country, and so on.

**Alienation and Efficiency.**—Another case of alienating the nation's property in the land in exchange for supposed economic advantages appears when land is granted to private persons in order *to secure the highest efficiency in its utilization.* This has played no inconsiderable part in initiating and maintaining the right of private property in this fundamental factor of production. Experience is believed to have shown that, in farming, *ownership* will yield far better results than any sort of *tenancy.* In this connection, it is interesting to note that advocates of socialism have in later years felt almost obliged to hint at excepting agriculture from their system of universal undertaking by the government.[2] This notion that the private control of the land, on the whole, works for superior efficiency, has been brought forward even in the case of lands used as sites for the manufacturing and commercial industries. Not a few advocates of a single tax on land have given up the plan of making this tax cover the *whole* rent, on the ground that this policy would lead owners to relinquish their rights to the public, a result which would substitute expensive and inefficient public management of these sites for a private one which is fairly free from these defects.

**Alienation and Capital Burdens.**—A final, and even more strictly economic, advantage of turning the land of the community over to private ownership is found in the fact that thereby *the public*

[2] It was reported this winter (1921) that the communistic government of Russia had decided to release the peasantry in large measure from the operation of their system.

*escapes various burdens* incident to occupying the position of landowner. It has already been fully explained that the price-making forces give to a non-producible income-bearer such as land *a price equal to the capitalization of its income.* It follows that every person owning a piece of income-bearing land must consciously keep invested in that land a sum of general value equal to the amount which at current rates of interest would yield an income equal to the one given off by said land. In doing this, he necessarily makes two sacrifices: (1) foregoing the present control and use of the amount invested, and (2) taking the risk that, through the decline in the income of said land, he will suffer more or less loss on the capital sum. In the language of the business world, the land has to be "carried." Now the bearing of these two burdens of ownership would doubtless be less onerous to the socialist state than it is at present to private owners. But it could not help being present, particularly the first of these. Circumstances might easily arise under which it would be greatly to the advantage of the state, or anyhow would be so considered, to exchange the right to receive an endless series of small future incomes for the right to have *now a lump sum equal to, say, twenty times one of those small incomes.* That, under such circumstances, the state would be justified in relinquishing to private persons the right which naturally belongs to it as the representative of men generally seems incontestable. Such a conclusion follows inevitably from any doctrine of sovereignty: the state has the right to do, ought to do, whatever it believes to be on the whole most conducive to the general good.

**Considerations of Equity.**—As a final comment of some weight in the situation, we may call attention to a fact implicit in what was just said with respect to the capitalization of the income of the land. This process means that the rent *is in effect transformed into interest and profit,*—quasi-interest and quasi-profit. When a system of private property in land has been maintained for any considerable time, persons can put themselves into the position of rent-receivers *only by parting with an amount of money capital equal to the value of the property in question.* It follows that, from the standpoint of abstract justice, if only these persons are

taken into account, the rent received is as truly justified as interest and profit received from any ordinary capital. The public interest may sometimes require a complete disregard of the claims thus created. But this is true of all rights. Until such a situation arises, the presumption holds that what the citizen has obtained through exchange for an equivalent sum of general wealth he has a valid right to enjoy.

## IV

### Further Modifying Conditions of Actual Life

In the preceding defense of the existing system of distribution, we began by arguing for *the general reasonableness of the principle* which is supposed to be realized more or less fully in that system,—that is, the principle that *each tends to get an income corresponding to the social value of his services*—his contribution to our economic life. We next undertook to maintain the thesis that said principle is still reasonable even under the specific conditions which enter into the actual economic order. In doing this, however, we have merely taken into account *one set* of conditions, namely, that legal system which permits private property in land and capital and so recognizes the contribution of these factors as being virtually contributions of private persons, and which, therefore, recognizes rent, interest, and profits as legitimate sources of private income.

If we were trying to make a truly complete critique of the existing system of distribution, we should be compelled to test the legitimacy of our service-value principle in the presence of many other modifying conditions. To carry out this test, however, would take us far beyond the scope of the present volume. We shall therefore content ourselves with mentioning some of these conditions, without attempting more than the briefest comment.

**Defects of Human Nature.**—In the present chapter we have merely attempted to argue for the general, abstract legitimacy of interest, profits, and rent as private shares, *having no regard to the weaknesses of human nature.* Taking those well known weak-

nesses into account, can the shares named still legitimately go to private persons? We recognize this question as a really serious one. We see much force in the contention that, however reasonable it may be on general principles to permit the private ownership of capital and land and the private undertaking of industry, the evils which inevitably result from such a policy in the actual working of things make its continuance impossible of justification. Still, in view of the great superiority, in other respects, of private, to public, ownership, and in view of the fact that its worst evils can be gradually removed without overturning the system, we believe that the system of private ownership should be maintained. At the same time, however, regulation of private initiative should undoubtedly be carried much further than it has been, limitations of the property right should be increased, and at some points, how many and what only experience will show, *public ownership and initiative should be substituted for private.*

**Rights of Inheritance and Bequest.**—A second supplemental question of much importance is whether the present system is justified in permitting private individuals to acquire possessions through *inheritance* or *bequest.* Personally, I am disposed to answer this question in the affirmative but only with very emphatic qualifications. I would greatly reduce these rights both directly by legislation and indirectly by a taxation which, for the excess of larger estates over a certain minimum, would amount to practical confiscation.

**Social Opportunities.**—Still another question is whether law should permit private persons to enjoy the extraordinary profits which flow from the exploitation of *natural resources, public franchises,* consolidations, etc. We can only say in this limited space that such permission is of very doubtful justice, and should at least be carefully guarded.

**Secondary Distribution.**—Finally, how far can society afford to modify the primary distribution of property and income *through a secondary distribution effected by taxation?* It would seem

that, if the dominance of the present principle of distribution—to each in accord with the value of his service—is necessary to insure the proper conduct of economic affairs, we should spoil everything by arbitrarily contravening the working of that principle, *even though we do this after distribution in accord with the principle has once been effected.* For what interest would a man have in earning ten times as much as his fellows, if he is to be reduced to their level by taxation? Doubtless, if it were to go so far as this, he would have *no* interest in seeking the better income. But, on the other hand, there can be no doubt that a tax much heavier than that levied on his poorer neighbor would not influence in any material degree his economic efficiency. The whole problem is one of degrees. Its solution probably can be reached only through experiment, and for that we shall have to wait.

## Illustrative Problem

The chief justification for the retention of a system which permits private ownership in property and private receipt of property incomes is based, in the last analysis, on the ground of expediency. Such a system works fairly well. Practically, the individuals in whom are vested the legal titles to property and to the incomes derived from them, act as stewards for society in the care and utilization of these properties, and in the disposition of a large part of the incomes derived from them. Argue in support of the thesis contained in the second sentence.

# CHAPTER XLVI

## CRITIQUE OF THE PROCESS WHEREBY PRODUCTION IS REGULATED

The chief characteristics which we can reasonably require in a productive system are: (1) that the *right things* shall be produced; (2) that the *quantity* of product shall be reasonably *large;* (3) that the *quality* of product shall be reasonably *good;* and (4) that these results shall be realized as *continuously* as possible,—in other words, that production as a whole shall be as free as possible from marked irregularities. In the present chapter we take up the first of these requirements,—*that the right thing shall be produced, or* The Regulation of Production.

It has by this time become a commonplace that, under the present order, the selection of what shall be produced is almost entirely effected through freely-determined prices. Now, as the earlier economists taught, if the present system could realize fully the conditions which are assumed as fundamental to it, this regulative mechanism would probably be an almost perfect one. The spontaneous working of free competition would result in prices which would insure production of the things called for by the general advantage,—the things which a wise dictator dealing with the same conditions would think it expedient to produce. Further, the earlier economists commonly believed that, even under the conditions actually existing, price-guided production *in the main* worked out results as near the ideal as could reasonably be expected.

In our day, this opinion is probably still held by the majority of economists. But a not inconsiderable minority take radical ground on the other side. A few even insist in unqualified terms that there is no truth whatever in the older doctrine, that there is not even a tendency for production to follow the channels which social or general advantage would dictate. In view of this disagreement, a

careful and rather full treatment of the matter seems called for. We ask, then: *Do the principles governing price promise to secure a reasonable guidance of productive activity?* In answering this question, we will first comment briefly on *the standard to be set up* in judging whether a particular guidance of production is reasonable; after which we will pass in review the leading principles of price, and try to determine the fitness of each to meet this test.

## I

### What Is a Reasonable Regulation of Production?

The answer to this question has already been made in introducing our critique of Distribution in Chapter XLII. The general object of an economic order of any kind is to secure the satisfaction of human wants in so far as this depends on economic goods. Just what wants shall be included under this general category, and the comparative order of their importance as between different persons, are determined by the system of distribution. It follows that *production, like all other economic processes, should be so regulated as to correspond to the system of distribution,—to provide for the satisfaction of wants according to the scale which is in effect embodied in the system of distribution.* This means that, broadly speaking, no wants are recognized as social wants except those of persons having incomes under the existing system of distribution, and that the wants of different persons have a social importance corresponding to the size of their incomes. Finally, it means that the general demand schedules made up of the different individual demand schedules, composite as they are, express the social importances of wants.

**Objections: Absolute Magnitude.**—The objection to this method of rating wants, that it does not rate them according to their real or absolute magnitude, has been answered directly or by implication in the argument for the general reasonableness of the present system. The *social* magnitude of wants is the only one in which society at large is interested; and the social magnitude of wants is *by no means identical with their absolute magnitude.* In

the spring of 1918, the wants of a French private soldier may have had as great absolute magnitude as those of Marshal Foch; but, quite obviously, they had much less social magnitude.

**Circular Reasoning.**—Another and somewhat more serious objection to the doctrine before us is that, taken as a whole, *it involves circular reasoning.* "On the one hand, letting ordinary demand prices—mere composites of heterogeneous individual schedules—represent the social importance of wants is said to be legitimate, because this is the necessary complement of the system of distribution. On the other hand, the system of distribution is said to be legitimate, because it gives each person what his services are worth as indicated by the general demand schedule. The system of distribution establishes the legitimacy of the demand schedules; the demand schedules establish the legitimacy of the system of distribution."

Now, this sounds plausible; but it will not, after all, bear examination. Individual incomes determine and so justify individual demand schedules; while demand schedules, *as a whole,* determine and so justify individual incomes. But true logical circularity would require much more than this, namely that the income which determines the demand schedules of a particular person *should itself have been determined by those very schedules.* This, obviously, is absurd. While the individual's income largely determines *his demand schedules;* it is the demand schedules of *other* persons which determine his *income.* It may be worth while to note that an argument analogous to the one just disposed of would make the law of supply and demand a case of circular reasoning, on the ground that supply and demand are really the same thing—the totality of goods—hence can not by their mutual relations determine price. The answer, of course, is that this identity of supply and demand can be affirmed of the *totality of goods only,* whereas the law of supply and demand always applies to *some particular commodity*

**Recapitulation.**—In order to emphasize the entire cause of reasoning on this matter, let us recapitulate it in a series of propositions as follows:

(1) The kind of importance in respect to wants with which society is really concerned and which, in the interest of the social welfare, should be treated as the proper guide of economic action is *social* importance. If this is not identical with individual or absolute importance, the latter must yield.

(2) The social importance of the wants of different individuals depends, not primarily on the absolute magnitude of those wants, but on the relative importance of the different *social ends* the attainment of which may be *conditioned* on the satisfying of those wants, and the degree to which their attainment is so conditioned.[1]

(3) One important way in which the attainment of social ends is conditioned on the satisfying of individual wants is found in the fact that the *getting of efficient service* from individuals is dependent on providing for the satisfaction of their wants in certain proportions. If we do not provide for their wants in these proportions, we do not get the service called for.

(4) On account of the great inequalities in human capacity and the consequent inequalities in the importance of the services different men can render, it is practically indispensable that this satisfying of their wants on which their efficient service is conditioned, should have some *reference to the importance of those services,* and so this *satisfying of wants should be unequal* as between different persons.

(5) Under the present system, society elects to attain the end by making the *money incomes of different individuals unequal* and roughly adjusted to the importance of their services,—leaving those individuals themselves to put a rating on the relative importance of wants.

(6) In doing this, *society necessarily recognizes these individual ratings of the importance of wants as social ratings, expressing the true, though indirect, social importance of those wants.*

(7) It thus follows that, broadly speaking, the *demand prices* of the ordinary demand schedules are, in a very real sense, *expressions of the social importance of the wants involved.*

**Qualifications.**—Having so roundly emphasized the point that the demand schedules resulting under the existing system of distri-

[1] See Note 10, Appendix.

bution represent broadly comparative social wants, let me once more remind the reader that this must be qualified if it is to be an entirely true account of the matter. At several points, other indices of the true social importance of wants are needed. The state must find other criteria when the wants of the group as a whole come into conflict with those of individuals; when the needs of future generations conflict with those of the present; and when the most fundamental needs of many individuals are opposed to the trifling needs of the few. In short, the general position here taken, that we must accept the demand prices of individuals as indices of social importance is in general perfectly sound; but, as in other cases, it is not always valid: these indices must at times give place to others better adapted for the particular case in hand.

### Illustrative Problem

It may be socially more important that a great executive enjoy a week's outing on which he is willing to spend $1,000, than that a common laborer get a winter's supply of coal on which he can afford to spend, say, $150. Defend that statement.

## II

## Are Prices Which Are Determined Under the Law of Single Price Proper Guides of Production?

Having now so definite a criterion as to what constitutes a proper regulation of production, our review of the different laws of price which participate in this process ought to prove a relatively easy task. First, then, we ask: Is the law of single price a suitable element in the mechanism which has the function of regulating economic production? The answer is surely an affirmative one. First, it is manifest on a little reflection that singleness of price is *necessary to the realization of the system of distribution authorized by society.* If incomes were equal, while the same goods had different prices, the equality of incomes would be defeated by indirection. One man could not get as much real income as another man though their money incomes were equal. On the other hand, if society decrees inequality of income, singleness of price is necessary

both from the standpoint of the man of small income and from that of the man of large income. If prices were lower to the rich man this would increase the inequality, make it greater than the social intention. If prices were higher to the rich man this would neutralize the superiority of his income.

But there is another reason and if anything a more fundamental one why the law of single price is a proper element in the system guiding production. It is *logically essential to having price act as a guide at all.* Guidance, like sovereignty, must be indivisible. *One* price for each product or each factor can guide us in the production of that product or the use of that factor; but *many* prices for each could not guide at all. Thus, if the relation of supply and demand is such that common sand is at the margin worth 50 cents while moulding sand is worth $1, these prices can perform their function in showing us that common sand can properly be put to uses as low as 50 cents while moulding sand must be reserved for uses rated as high as $1, *only on condition that the one price of common sand is 50 cents and the one price of moulding sand is $1.* If at the same time common sand has prices of 50 cents, 75 cents, $1, $1.25, $1.50, and so on, we should have no guidance whatever from this source,—prices would have no significance as respects the importance of the things involved.

## III

### Are Prices Which Are Influenced by Demand Prices and the Forces Behind Them Proper Guides of Production?

We have seen that the law of single price constitutes not only a legitimate, but also a necessary, element in an economic order which entrusts the regulation of production to freely determined prices. What now is to be said of *those principles which impute to demand prices and the forces behind them, significance, utility, a share in the fixing of actual prices, and therefore in the regulation of production?* Do these constitute a legitimate element in the regulative mechanism? Is it reasonable that actual prices which approximately equal demand prices, and approximately express marginal utilities or significances should participate in the guidance of production?

**The Case of the Individual.**—In giving an affirmative answer, the majority of economists have probably had in mind the analogy of the individual guiding his own economic life in accord with his individual demand schedules. With respect to the reasonableness of his conduct in doing this, there has been no serious difference of opinion. Those schedules consist of money expressions of utility or significance for different commodities. These money expressions are fairly accurate indices of the *comparative* importance to the individual of the utilities in question, and so of the goods which yield the utilities. And the function of such money expressions of utilities or significances is to guide the individual in the rational utilization of his income or resources from which to secure an income. Speaking broadly, *each person should, as far as possible, employ his income of purchasing power in such a way that the marginal utilities derived from equal portions of that income would be equal; and, when this is not possible, should employ said income in such a way that utilities or significances of higher rank would never be sacrificed for utilities or significances of lower rank.* The practical wisdom of such a rule of conduct is plain, for it surely is the part of good sense to provide for the satisfaction of our wants in proportion to their importance.

**The Case of Society.**—Is there a true analogy between this case of the individual and that of society as a whole? Is there a rule analogous to that just laid down for the individual which can reasonably be applied to society as a whole? Is it reasonable that we should, generally speaking, so use our resources that marginal utilities, as these appear to be when judged by the general demand schedules, shall be substantially equal all along the line? That such a rule for society at large *actually obtains is evident enough.* That is, society's use of its income or income-bearing resources is in fact guided by the market demand schedules which were studied in earlier chapters. Through the guidance of these schedules, resources are so employed that the marginal want satisfied in any one of many different lines is equal,—when measured by the persons interested, in a unit which is at least nominally the same,—to the marginal want satisfied in any other of those different lines. In other words, if we recognize demand prices as a true index of the

size of wants, then 1 dollar's worth of resources are used to satisfy what seem to be $1 wants, not 50-cent wants nor $2 wants. But, while such a rule does obtain for society in general, the question remains whether this rule can be interpreted and justified as the analogous rule is in the case of the individual. Are these demand prices of the general demand schedules a true index of the real social magnitude of wants? Do they express *comparative social or general importances* in anything like the same way that the demand prices of the individual schedule express comparative individual importances? If they do,—and only if they do—we may say that the guidance of production effected through them in a rough way secures the gratification of wants in proportion to their importance, and is, therefore, a reasonable one.

**Affirmative Answer.**—This question has already been answered in the affirmative on pages 507-510. Given a system of distribution approved by society (and a system of distribution cannot exist without this approval), the general demand schedules are *social* schedules, schedules representing *social significances* or *importances, as these are determined by the vast complex of conditions which at any moment prevails.* To this broad statement, there are several qualifications, as already brought out; but the statement is, after all, substantially true. The objection, that, on account of the different meanings of the money measure to different persons, the prices of the general demand schedule do not represent the absolute magnitude of wants, has already been sufficiently answered. The reasonable, the proper, guide to the use of the resources belonging to a social group is *not the absolute magnitude* of wants *but their social magnitude.* Production should be so guided as to secure the greatest social, not individual, advantage. We are not, therefore, concerned with absolute magnitudes.

If the objection is to be interpreted as really directed against the use of the *term* "utility" and the *phrase* "marginal utility" in this connection, the matter, like other verbal controversies, is not of great moment. The general point, however, is important. In accepting the guidance of ordinary demand schedules in the use of its resources, society, broadly speaking, *insures that those resources*

*shall be used in a way which provides for the satisfying of wants in proportion to their social significance.*

## IV

### Are Prices Which Follow Cost Proper Guides of Production?

Among the most important of the principles through which prices are determined are those which affirm some kind or degree of causal connection between price and cost of production. Broadly speaking, in most cases prices have to equal marginal cost of production; or, anyhow, the prices of different goods have to show *the same ratios* as their costs of production. A commodity costing twice as much as some other commodity must have a price approximately twice as high. Is such a principle as this a suitable element in the mechanism which regulates production? Does it tend to insure that our resources shall be most wisely utilized?

Here, again, the answer is certainly an affirmative one. Prices which have the regulating of production, which are called on to utilize our resources to the best advantage, can do this only on condition that they are, generally speaking, coincident with marginal cost. Correct prices, prices fitted to guide production rightly, must be adjusted, not only to demand prices and the forces behind them, but also to supply prices. If the price of any particular commodity, as compared with those of other commodities, was higher than its cost, this could be only because that price was being held up by a marginal significance or utility abnormally high as compared with that of other commodities having the same cost. But, since it is our business so to use our productive resources that a given unit of those resources yields equal or almost equal marginal utilities all along the line, the abnormally high marginal utility of our special commodity would mean that too little of our resources was being used in the production of that commodity, too much in the production of other commodities. On the other hand, if the price of any particular commodity, as compared with those of other commodities, was below its cost of production, this could be only because that price was being held down by a marginal significance or utility which was abnormally low as compared with that of other commodities having

the same cost. But, in view of our rule of equal marginal utilities, this abnormally low marginal utility of our special commodity would mean that too much of our resources was being used in its production, too little in the production of other commodities.

### Illustrative Problem

"Our attitude on the matter of pay to teachers is simply absurd. We pay less for this function which has such supreme importance to society than to the least skilled mechanic working in an automobile factory. But we shall be brought to our senses one of these days by learning that we simply will not be able to get teachers at the beggarly wages we pay."

Of these two reasons for paying higher wages to teachers, the former is from the standpoint of economic science a worthless one; the latter a good one. Defend that statement.

# CHAPTER XLVII

## CRITIQUE OF PRODUCTION IN RESPECT TO EFFICIENCY

In beginning the last chapter we said that a satisfactory economic order might reasonably be expected to produce the right things, to produce them in large quantity, to produce them of excellent quality, and to produce them without marked irregularities. We have thus far seen that the existing order, governed as it is by the laws of price, meets the first of these conditions—the production of the right things—reasonably well. It is the task of the present chapter to make a similar, though briefer, test of the three remaining conditions.

### I

### The Present Order and a Large Volume of Products

To the question whether the present order is fitted to make the volume of products large, almost all students of our subject give a favorable answer. In general, abundance of products must depend chiefly on three conditions: (1) a large volume of productive factors, (2) high efficiency in those factors, and (3) most profitable utilizing of those factors. Let us consider these in order.

**Volume of Capital.**—As respects the volume of resources, no system can alter this as far as it depends upon nature. But the factors dependent on human choice—all forms of labor, waiting, and initiative or responsibility-taking—may be supplied in small or in large volume according to conditions. As regards the second and third, the present order promises to do much better than any substitute ever seriously considered. A large volume of capital, which is the sole condition for an abundant supply of waiting power and the principal one for an abundant supply of initiative, is surely

more likely to be realized under the present order than under socialism. With the present order, the accumulation of capital is left to private initiative, and a reward offered, in the shape of interest and profits, makes possible the attaining of a competency with its freedom from labor. Under socialism, private capital, anyhow private interest and profits, would be eliminated. Society would, therefore, have to depend on something akin to taxation as a means for accumulating capital. But in a democratic state, with inequalities of income eliminated or much reduced, it is hard to believe that capital could be largely accumulated by such a method.

**Volume of Labor Services.**—Turning to the labor factor, we must admit that a socialistic order would show less difference; but it would after all give smaller resources than the present order. One of the leading aims of socialism is to diminish individual responsibility in economic things. It does not, indeed, plan to go as far as communism, treating all members of the community as if they were members of one common family,—insuring them a livelihood anyhow. But it does propose to go a long way in this direction,—to insure everyone a job and a so-called living wage,—to relieve everyone of much of the anxiety which characterizes the present order. Now, this may be on the whole very desirable; but it can scarcely fail to reduce the energy, industry, alertness, and prudence which men bring to their tasks under the present order, where the livelihood and the economic position of each individual are conditioned on the contribution he makes to the supposed welfare of his fellows.

**Efficiency.**—What has been said concerning the volume of the factors available applies in considerable measure to their *efficiency*. That feature of the present order which makes the share of each person dependent on his contribution as measured by others, stimulates him—assuming free competition—to raise the efficiency of the factor in his control as high as possible, in other words, to furnish efficient services. Finally, the system of private initiative probably promises to give greater efficiency in the *utilization* of the factors; though it is doubtless true that governmental action can contribute much at this point, particularly by the discovery of better

methods in industries where private initiative seems backward. In general, then, we may conclude that under the present order all the necessary conditions are fulfilled for securing a large volume of products.

**Objections.**—The above verdict is concurred in by almost all economists. Yet perhaps a moment should be given to the opposing contention of certain critics that the present order is not productively successful. In support of this idea they bring forward three considerations chiefly: the wastes of competition, the idleness of the parasitic classes, and the sacrifice of utility to value.

The first of these points is easily answered. There are undoubtedly *wastes in a system of free private initiative,*—though their amount is grossly exaggerated,—but, in the opinion of the economist, *this so-called waste is merely the cost of a rarely efficient initiative, and a low cost at that.* For all students of business organization agree that the monopolistic and quasi-monopolistic business units are much less efficiently organized today than are the units exposed to free competition.

Again, we cannot take more seriously the talk about the *wasted productive capacities of the parasitic classes.* To start with, their number is extremely small. A large proportion of the persons often designated as parasites are in fact performing functions essential to high productive efficiency. In the second place, it seems certain that, if they all were to become producers in the socialist sense, the amount they would add to the income of each person would be scarcely appreciable.

Finally, the third objection of the socialist seems to economists to be a serious error. There is no doubt the possibility of a *contradiction between utility and value.* One who is seeking only to increase values may find himself in a position where he would better diminish output and so diminish utilities; and, since the immediate return to producers is a value return (purchasing power in the form of money) rather than a utility one, it naturally follows that producers may at times gain most by reducing, or at least checking, the increase of utilities. But the pursuit of such a policy is possible only *through concert of action among producers;* since values can

be increased by limiting output, only provided it is the *total* output which is thus limited, not merely that of *some* producers. *But concert of action among producers is in contradiction to the very essence of the present order* of which untrammeled private initiative is the dominant feature. Accordingly, it is quite illegitimate to represent this order as one in which producers will inevitably seek to increase values to the neglect, or even the destruction, of utilities. Increase of values is doubtless the natural goal of the producer as producer; but, under a régime of free competition, *the only path by which that goal, generally speaking, can be attained is the increase of utilities.*[1]

## II

### The Present Order and Qualitative Excellence in Products

The third requisite of an effective regulative mechanism for an economic order is fitness to insure that products should be of *high quality* as well as abundant in quantity. Is this requisite likely to be present in a regulative mechanism which consists of freely determined prices? At this point, it seems to me, our *verdict cannot be so favorable.* Doubtless the discriminating demands of buyers will secure high quality in some few products, through the natural competition of producers. But with the majority of products this rule will not apply. Unless government steps in to supplement the control effected by freely-determined prices, we almost everywhere meet with adulteration, poor materials, bad workmanship, etc. This might be remedied if buyers became more alert, better-informed, and more insistent with regard to their rights. But the likelihood of any such change is very remote. At many points buyers would find great difficulty fitting themselves to guard their interests even were they disposed to take the trouble; at some others they are pretty

[1] The last objection is perhaps given too little weight in view of the present trade-union policy of encouraging or requiring the limitation of output,—a policy which would probably be less pronounced under socialism than it is today. Doubtless the diminution or disappearance of the open approval of soldiering would tend to result in a considerable increase in output. On the whole, however, I believe that this would be more than offset in a socialist order by the diminution in motive for effort due to the much less rigid connection between wage received and service rendered.

likely to be misled despite their efforts. Much evil may thus result both to individuals and the community; so we cannot afford to leave regulation to the working of spontaneous forces. It should be added, however, that *the partial failure of price control in this respect does not constitute a very serious defect in the present order, because the needed supplemental action of government is comparatively easy to work out, as has been shown by the experience of the last sixty years in England.*

## III

### The Present Order and Continuity of Production

An economic order in which the regulative mechanism was efficiently operative for short periods only,—being every now and then completely thrown out of gear so that a highly disordered state of things ensued,—would be considered by everyone seriously defective, if not almost unendurable. An economic order to be really satisfactory, ought to show steadiness, regularity, dependableness,—ought to be free from all marked perturbations. Now in this respect, *our system unfortunately does not work so well as we might desire.* It is a familiar fact that production is subject to marked, almost violent, fluctuations, which naturally group themselves into the so-called industrial cycle; depression, recovery, increasing activity, normal activity, over-trading, crisis, collapse, depression, and so around again. The claim of the socialist that public initiative would almost, if not quite, eliminate this sort of thing is without doubt a fairly reasonable one. At all events, socialism would be certain to work better at this point than does the present system. The fact, however, is that the industrial cycle, in its serious forms, is a comparatively modern disease, little more than a century old; and much has already been done by our system to bring it under control. America, for reasons easy to trace, is still much subject to attack. But England, the original home of great panics, has had no serious crisis since 1866. In short, the leaders of industry are learning to control things sufficiently to safeguard this trouble or to palliate greatly its evils. Accordingly, while the present order cannot be cleared of blame, we should surely be unjustified at the present time

in pronouncing a final verdict against it on account of the defect in question.

## IV

### Conclusion

We set out upon this discussion by asking whether the system of regulating production through freely determined prices works out reasonably satisfactory results. What answer may we draw from the facts presented above? We may, and apparently are compelled to draw an affirmative answer—*an affirmative qualified, but still an affirmative*. The results are certainly below the best conceivable. Nevertheless, while great improvements are needed, are possible, and ought to be effected, we must still hold that a verdict for the substantial soundness of the system is practically inevitable. We may add that a thoroughly humane despot with power to substitute any other system thus far proposed, might very probably—if he took all the facts into consideration—decide that the system now operative was on the whole the very best one possible.

# CHAPTER XLVIII

## CRITIQUE OF CONSUMPTION

In concluding our study, let us consider for a moment the satisfactoriness of the present order with respect to consumption. Consumption, sometimes treated as one of the main divisions of economics, coordinate with production, exchange and distribution, has for various reasons been given little prominence in this volume. Nevertheless, our critique of the present order ought not to end without a brief comment on the way in which the price regulative feature affects consumption—the use which is made of wealth—and without some attempt to determine whether the result is satisfactory or the reverse.

As respects the regulation of consumption, a satisfactory system needs to show three results chiefly: (1) Those natural resources which belong to society as a whole and to posterity must not be sacrificed to the selfish greed of the individual and the present; (2) the satisfaction of immediate wants must not absorb all our producing efforts to the neglect of that building of capital on which great productive efficiency depends; and (3) the best utilization of a stock of consumption products already existing should be assured.

The first of these demands, we must admit at once, is very *imperfectly provided for in the present order*. Under the free working of private initiative, the vast resources of a continent in lumber, coal, iron, etc., are being rapidly dissipated, and that in too large measure for the benefit of very small classes. Even the race itself has been threatened with serious deterioration through an unbridled use of liberty in the employment of women and children; so that everywhere governmental interference has proved a necessity. All this is natural enough. When we are dealing with the interests of the remoter future, it is only within quite narrow limits that we can trust the forces which ordinarily prove efficient and safe regulators

of economic action. The safeguarding of those interests is a duty which from its very nature *rests upon the group,* rather than the individual. Unfortunately, the group too rarely rises above the standpoint of those individuals who are economically most powerful and greedy; so that the duty of the group in this respect is too frequently neglected. Still it cannot be doubted that our only hope lies in this direction. Government must put great and rigid limitations on private initiative if the social patrimony is to be saved at all.

As regards the second requisite of a system which properly regulates consumption—that it should nŏt permit the satisfaction of immediate wants to absorb all our productive efforts to the neglect of capital-building—*our present system can give an excellent account of itself,*—a better account, probably, than could be given by any system depending on public initiative. Capital increases at an amazing pace. The increase is doubtless not a little due to a feature of the system which is, in many respects, undesirable, the extreme inequality of incomes; for this concentrating so much in the hands of a few makes the task of saving relatively easy. But there is another explanation. The present system powerfully stimulates accumulation in that it offers to those who save, great rewards, not so much in the shape of interest, as in the shape of those profits which may be obtained by the skillful use of a small initial sum. A further reason is found in the fact that the present system supplies highly convenient and efficient machinery for assisting the process of capital-building, in the shape of savings banks, insurance companies, bond exchanges, and the like.

The third requisite—the best utilization of an already existing stock of consumption products—*is easily met by the present system, save under quite exceptional circumstances.* It belongs to the very nature of the laws of exchange to establish a price which adjusts demand to stock: reducing demand, if stock is deficient, by raising price; increasing demand, if stock is excessive, by lowering price. But here, again, we are confronted with the "rich-man-poor-man" objection which was brought forward against the present regulation of production. "Demand," it is said, "is doubtless adjusted to stock by being cut down through higher price; but unfortunately this means that the demand of the poor is reduced while that of the rich

remains at its old level." Now, there is doubtless some truth in this; the burden of curtailing consumption will often fall more on the poor than on the rich. Further, just as in production, circumstances may arise where the discrepancy between the real magnitude of wants and their effective magnitude as expressed in price is so great that it becomes the duty of society to interfere with the automatic regulation and determine by authority the destination of its resources. Thus, when a famine of food, fuel, or other fundamental necessary threatens, it usually becomes the duty of government to intervene, even perhaps to the extent of taking upon itself the task of distributing these commodities.

But, while extraordinary circumstances may arise which call for some other method of regulating consumption, the regulation by freely-determined price is on the whole fairly well adapted to most needs of human society. In the first place, it is easy to exaggerate the seriousness of the objection that in times of stock-deficiency, regulation through price throws the entire burden of curtailing consumption on the poor. Save with respect to a very few commodities, indeed, the number of families who do not reduce consumption at all when price rises is very small,—so small that its continuance of the old scale cannot materially alter the result; and here the government should, and usually does, step in and adjust the matter. In the second place the maintenance of a consumption policy which treats wants as having a social importance corresponding, not to their absolute magnitude, but rather to their apparent magnitude as expressed in the demand schedules of individuals, is a necessary complement to the system of distribution which is permitted to obtain. If incomes can legitimately be unequal,—and we have argued that they really must be unequal,—the needs of persons having unequal incomes, needs which are, absolutely considered, equal, must, after all, be treated as having unequal social importances. For any other policy would destroy the inequality of incomes which by hypothesis is necessary.

# APPENDIX

## EXPLANATORY NOTES

### Note 1

A somewhat different solution of the difficulty which in the text was met by the use of the concept "capital as capital" makes the essence of capital to reside in the *fund of value* embodied in the goods commonly called capital. This is *real* capital, *pure* capital, *value* capital. In contrast, the goods are *concrete* capital or *goods* capital or *capital goods.*

Closely allied to the last distinction is one which contrasts *money* capital with real or goods capital. The former is the fund of money which is accumulated and then used to purchase the goods capital; or, better, perhaps, which is conceived as having been put into the goods capital. This in turn suggests the distinction of *invested* capital and *free* capital, a distinction which the terms sufficiently explain.

A distinction which is sometimes useful is that between *formal* or money capital and *real* or goods capital. The former is the fund of money or bank credit which the capitalist accumulates; while the latter consists of the actual goods, the engines, machines, coal, etc., which are elsewhere produced to be bought with the money capital. This distinction emphasizes the point that the things which we are really trying to get are the engines, machines, etc., the fund of money being only a go-between. The distinction must not, however, be taken too seriously. In a very important sense, the man who accumulates the mere fund of money is responsible for the existence of the engines, etc. He it is who supplies the waiting power which makes possible this particular employment of our productive resources.

Among older ways of distinguishing different forms of capital is one which contrasts fixed and circulating capital. The former is

capital, like a tool or a machine, which gives off *more than one service,* while the latter is capital, such as the raw material used in making a wooden box or the coal burned in a steam engine, which does its part in a single use, *gives off but one service.* An interesting contrast is often drawn between *specialized* and *general* capital. Specialized capital is the kind which is fitted for one purpose only or for a very few purposes at most, for example, a planer, a copper steamer, or a printing press. Generalized capital on the other hand is something like coal, or pig iron, or most of all, money, which can be put to any one of many uses.

Most people broaden the concept of capital as "products devoted to further production," making capital synonymous with *income-getting goods,* or all goods which serve their owner indirectly by supplying him with *other* goods. If we take the word in this sense, it is necessary to recognize a distinction between *social* capital and *private* or *acquisitive* capital. Social capital, which is virtually the same as that discussed in the foregoing paragraphs, produces other products, and is therefore income-giving even from the social point of view. But private, or acquisitive capital—for example, a gasoline launch rented to a summer resorter—does not increase the total volume of goods and so is not income-bearing from the social standpoint; it yields an income to its owner only.

Some writers include under the term capital all *durable* products, not only those devoted to production, but those, such as a dwelling house occupied by its owner, which are devoted to consumption as well. While the older usage is preferred by most authorities, there is much to be said in favor of the new. Indeed, the emphasis we have laid on "carrying" as the distinctive mark of *capital as capital* makes such an extension of the field to which the term is applied almost necessary. Durable goods are, as such, goods which give off their uses on the installment plan,[1] that is, only a part of the services which they are capable of yielding can be enjoyed this year, 1921; we must wait for some of them till next year, for others till 1923, and so on. We can afford to resort to the use of such durable or instalment-service goods, *e.g.,* brick houses instead

[1] I sometimes call such goods "installment-service" goods.

of wooden ones, only on condition that we have the necessary power to wait, to put into the house a great amount of productive resources which will in large measure yield its returns only after the lapse of a long period.

A very natural extension of the term capital makes it to include such facilities and constructions as highways, canals, and bridges, which are usually maintained by the government. These things manifestly show the characteristics of being produced and devoted to further production. They are not, however, subject to private ownership, and so do not have a price; hence they are not wealth in the usual sense, and, if capital is to be restricted to wealth in that sense these things are not capital. A natural compromise is to call them *public* capital.

A less legitimate broadening of our term takes in the body of knowledge handed down from generation to generation which plays a very large part in economic production. In a sense, this has been and is being produced; and it is obviously being used to assist production. It is not, however, included among the things which possess exchange value, command a price. It is not, therefore, wealth; and, not being wealth, it can be called capital only in a figurative way. It is sometimes designated social or public capital.

Finally, it is sometimes convenient to speak of *personal* capital, in reference to the bodily or mental capacities and aptitudes of human beings. Most economists, however, consider such language figurative. Capital is only a particular kind of wealth, or wealth looked at in a particular way. But personal capacities are not wealth because, not being transferable, they have no exchange value; and if they are not wealth, they cannot be called capital in the economic sense of the term.

### Note 2

In connection with the concept of "marginal product" discussed on page 131, a possible misunderstanding should be guarded against. The propriety of this designation for the addition to output consequent upon the addition of a unit of the changing factor is questionable, but conforms to the common usage of current economic

writing. In saying that, in combination 11, the marginal product of the L's is 15, that is, that the 2 L's added in that combination "produce" the 30 units of additional output, we do not mean that these 2 L's are alone responsible for bringing into existence those 30 units of product. Such a contention would be absurd. When each of several factors must necessarily be present, if a given result is to be brought about, no one of them taken by itself can be physically or technically credited with the production of that result, or any assigned part of it. The *whole* 266 units of product resulting from combination 11 are produced by the union of *all the N's* and *all the L's* entering into the combination. The 2 new L's could produce nothing if the 20 N's were not present. That is, the N's are *just as necessary* to the production of the additional 30 units of product *as the additional L's; for there is no degree in necessity.* In short, it cannot be too much emphasized that there is no possibility of isolating any portion of the product and saying that it was *produced* by any particular unit or units of any of the factors *in any physical sense.*

What, then, do we mean by crediting a particular portion of the product to a particular pair of L's? Simply this: that, *in view of all the circumstances, it is reasonable to act as if those L's were alone responsible for the added units of product.* These circumstances may arise in several different ways. One of the best cases, perhaps, is met when a particular unit of some factor, say a piece of land, is superior to other units in actual use, which, however, are so numerous that they can be ignored in economic reckoning,—are in effect free goods. Since these units of the superabundant grade can be treated as non-economic factors, no part of their product, say 20 bushels per acre, will be credited to them. The farmer as a laborer, or as a laborer and capitalist, will receive the whole product. But, if a man can afford to expend his efforts getting only the 20 bushels yielded by the non-economic land, he can afford to pay something for the control of a piece of land which would yield, with the same effort, 24 bushels. He can without impropriety affirm that such control would add 4 bushels to his output. He may, without being led into any practical error, conceive these 4 bushels to be the product of the land alone, though they are really no more the product

of the land than the other 20 bushels; and none of the 24 bushels are the product of the land any more than they are the product of the farmer. In a word, the real fact is this: from the economic standpoint, *we act reasonably when we conceive that the land alone is responsible for the extra four bushels given off by this better grade of land.*

In the case just considered, we were enabled to ignore the share of the farmer in producing four bushels of the total product and to treat those four bushels as the special product of the land, *because the maximum share going to the farmer was already determined as the product which he could get on the non-economic land.* Substantially all that he could get beyond that he must regard as due to the special piece of land and, so doing, he can reasonably offer to pay to the owner for the privilege of using that piece of land anything less than four bushels of product. Another case wherein it is legitimate to ignore one of the factors and treat a particular part of the product as due exclusively to the other factor, arises when for any reason such other factor is conceived by the producer as *fixed in amount.* Thus we might suppose a farmer who was possessed of a piece of land which he could not or would not alienate, even in part, and to which he could not or would not make any addition, to be considering how much he could afford to pay a farm hand who was applying for a job. If, under such conditions, the laborer could add 200 bushels of wheat to the farmer's crop, the farmer could afford to treat his services as worth substantially 200 bushels of wheat, that is, he might reasonably act as if the laborer were alone the producer of these 200 bushels, though of course this would not be true in any literal sense—those 200 bushels would be, like all the other bushels, the joint product of the several factors involved.

## Note 3

The discussion on page 295 brought out the point that 4 different prices of the demand and supply schedule play decisive roles in the immediate fixation of price. To avoid some rather persistent misunderstandings, it is perhaps desirable to note some differences in the processes by which these different limiting prices operate.

The marginal demand price as a check on the upward movement of actual price, and the marginal supply price as limiting the falling of price are mere *indices of the presence of the real causes* rather than themselves the forces accomplishing the results. Thus, when, in the silver schedule on page 281, the actual price refuses to rise above 55 cents lest it should exclude the 10,000 ounces of demand which came in only when price was as low as this, the fact really bringing about this result is *the absence of that 10,000 ounces of demand at the higher figure,* 56 cents, *not the presence* of that increment of demand at 55 cents. This is seen from the fact that, had there been no new demand at 54, or 53, or 52, or any lower price whatever, the price would still have come down to 55 cents,—even, in fact, to 54 cents.

Analogous statements must be made with respect to the marginal supply price. As a limit to the falling of price from 55 to 54 cents, it is little more than an index of the presence of the real cause, that is, *the failure of supply at the lower price,* 54 cents. If no wheat whatever could be supplied at 55 cents, the price could not have gone down to 54 cents just the same,—in fact it could not have gone down even to 55.

In contrast with this status of the marginal demand and marginal supply prices considered as upper and lower limits, respectively, the first extra-marginal demand and supply prices are themselves *active* causes in fixing the position of actual price. That price cannot go up to the first extra-marginal supply price *just because it is that price,* that is, because it *of itself* will let in too much supply. So the actual price cannot go down to the first extra-marginal demand price just because it is that price, that is, because it will of itself let in new increments of demand.

## Note 4

As remarked on page 316, some economists hold that profits are not even at the present time an element in cost. Two of the considerations brought forward in support of this opinion will be briefly commented upon.

First, it is sometimes remarked that, especially in the industries which involve much risk, for example, gold mining, the *total* ex-

penditure—the expenditure over the whole industry—is probably much greater than the *total* return: some surpluses are gained, but more deficits are incurred. The answer to this is easy. That anything should be a cost does not require that *every* unit of that thing should be remunerated. The only question is this: Is the forthcoming of supply dependent to an appreciable extent on the covering of a particular item which is alleged to be a cost? Are there entrepreneurs who will continue to supply commodities only on condition that they get from the business a return on their capital in excess of the interest which they could get simply by lending that capital? and is the supply which is so dependent on the action of these entrepreneurs of sufficient volume to make its withdrawal from the market significant? The correct answer is surely an affirmative one.

Another way of maintaining the proposition that profit is not a true cost is to say that, although some entrepreneurs may earn profits, the marginal ones commonly do not; and since it is marginal cost in which we are interested, this shuts profits out of costs altogether. The real ground for this contention is that there are always producers who are hardly able even to cover their cost of production, who go on year after year running more and more behind, gradually using up their capital; and because their cost is the greatest of all —so great as to deprive them of any profits—*the objectors in question look on these producers as the real marginal ones.* The answer to this objection is that the persons in question are *not true marginal producers.* The true marginal producer of any service or commodity is *the man who would first quit production should price fall;* like the marginal seller (page 276), he is *the producer whose presence is conditioned on the appearance of the marginal price.* Now this plainly has no application to the class of persons described above. They are not brought into the market by the marginal price; they will not drop out of the market should the price fall still lower. They will continue to produce because they have no alternative. They are perhaps too old to change to some other employment,—hence keep on for the opportunity to employ themselves, gradually consuming the little capital which they have in the business.

## Note 5

A special exception to the statement that rent is usually a part of the cost which determines the normal supply price may arise in this way. As indicated in the text, the reason we usually have to include rent is that the entrepreneur is driven to pay that rent because of the competition of persons who wish the use of the land for *other* purposes: that is, rent is what is called an *opportunity* cost. But cases arise in which the entrepreneur is compelled to pay a certain amount of rent for a particular piece of land, not because it is wanted in some *other* industry,—for some other purpose,—but only because it is wanted by other producers in the *same* industry. Thus, let us suppose that a given piece of land is wanted for a particular purpose, for example, manufacturing steel balls, for which purpose its services would be worth $1,000 a year, while for the best of all other purposes its services would be worth only $800 a year. In this case, manifestly, the tenant, if compelled to pay the last $200 at all, is so compelled by the competition of producers who want the land for the same purpose as himself. In a case of this type, the new increment of rent is not a part of cost. The supply price of steel balls is not increased because this $200 has to be paid to the landowner. That $200 is a surplus over the supply price of steel balls which circumstances cause to arise and which the mutual competition of producers of steel balls drives into the hands of the landowner. On the other hand, the $800 rent due to the competition of other industries must make the supply price of steel balls higher, hence must be accounted a part of cost.

## Note 6

The untenable character of the doctrine that each product has its price fixed by its own marginal utility solely, is easily shown. On such a theory, the hypothetical case treated on page 389 would give the results represented in the accompanying diagram (Fig. 1). The marginal significance of $P_1$ being $120, would make its price $120, which would make the price of the 12 L's entering into it $120, which would make the price of 1 L $10; so the marginal significance of $P_2$ being $80, would make its price $80, which would make the

1L \$10⟵ 12 L's \$120⟵ 1$P_1$ \$120⟵ M S $P_1$ \$120
1L \$ 8⟵ 10 L's \$ 80⟵ 1$P_2$ \$ 80⟵ M S $P_2$ \$ 80
1L \$ 6⟵ 8 L's \$ 48⟵ 1$P_3$ \$ 48⟵ M S $P_3$ \$ 48
1L \$ 4⟵ 6 L's \$ 24⟵ 1$P_4$ \$ 24⟵ M S $P_4$ \$ 24
1L \$ 3⟵ 4 L's \$ 12⟵ 1$P_5$ \$ 12⟵ M S $P_5$ \$ 12
1L \$ 2⟵ 2 L's \$ 4⟵ 1$P_6$ \$ 4⟵ M S $P_6$ \$ 4

Figure 1.

price of the 10 L's entering into it \$80, which would make the price of each L entering into it \$8; and so on. But obviously, this result would be impossible; we should have in the same market at the same time, 6 different prices, \$10, \$8, \$6, \$4, \$3, and \$2, for the same commodity, 1 L.

## Note 7

The theory as to the process of final price determination brought out on page 390 is in a general way that of the Austrian school. It may be represented in schematic form by the diagram in Figure 2.

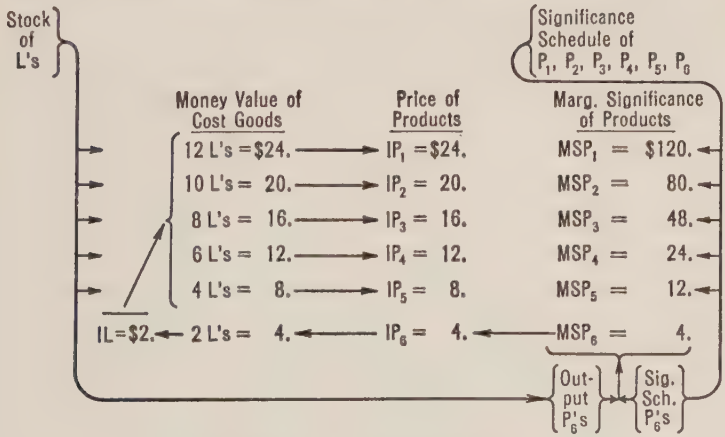


Figure 2. Austrian Theory

In this diagram, L's are supposed to represent the single primary factor or cost good, while $P_1$, $P_2$, $P_3$, etc., represent the different products arranged in the order of their marginal as well as their

generic significance or value. Our stock of L's is supposed to be such that we can fairly satisfy our need for products ranging from $P_1$'s down to $P_6$'s, but no further. The utility schedules of all of these except $P_6$ are supposed to be highly inelastic, so that when production is economically carried out the marginal utility of $P_1$ stops at $120, that of $P_2$ at $80, that of $P_3$ at $48, and so on, as indicated in the third column of the diagram. At the top of the diagram, left and right, we have the *two fundamental elements* in the process of price determination: the stock or output of L's on the one hand, and the significance or utility schedule of products on the other. These are, so to speak, the springs from which flow all the forces that are in any way concerned in the process of price determination. The arrows leaving these two starting points, going around the main part of the diagram, and meeting at the lower right-hand corner bring out the point that, however complicated the processes by which the result would be reached, under our present hypothesis, *the price-determining forces would come to a focus in the marginal significance of the marginal product.* The remainder of the diagram shows that, after equilibrium has been reached, *the reaction which is logically first* among the reactions set up by the interaction of the stock of L's and the several significance schedules *is the fixing of the marginal significance of the marginal product,* $P_6$. That, being finally fixed at $4, would cause the price of $P_6$ to be $4, as indicated by the arrow going from right to left between these points. This price of $4 for $P_6$ would, in turn, make the money value of the 2 L's contained in it $4, and, so, would make the price of 1 L $2. This price of $2 each for the marginal L's would now be communicated to all other L's, namely, to those L's which are used in the higher products. In consequence, the money value of that quantity of L's which is used in each of the several products would remain as many times $2 as the number of L's used in producing said product. Finally, the money value thus established for the L's contained in each product would be communicated to the products themselves; that is, to $P_5$, $P_4$, $P_3$, $P_2$, and $P_1$, as indicated by the five horizontal arrows running from left to right. As a result $P_1$ would have a price of only $24, though its marginal utility or significance was $120; $P_2$ would have a price of only $20, though its

marginal significance was $80; and so on. That is, for all these supra-marginal products, cost, not utility, is the determining element, though more remotely the decisive thing is utility, only it is the utility of the marginal product, determining the price or value of the primary factor, and, through it, the prices of all supra-marginal products.

## Note 8

In explaining the Austrian theory of final price determination, it is almost impossible to avoid letting in some misleading implications. Thus, it is almost impossible to avoid giving the impression that the marginal utility of $P_6$ would be first determined *independently of everything else;* that this marginal utility would thereupon determine the price of $P_6$ *independently of everything else;* that the price of $P_6$ thus determined would then fix the price of L's devoted to its production *independently of everything else;* and so on. Now, it is surely quite impossible that anything like this should take place. No one of these things, whether the marginal utility of the marginal product or the price of any one of the various products or the price of L's, could be determined independently of the determination of every other one of them. The marginal significance of $P_6$ could not be determined until the output of this product had been finally determined. In turn, the output of $P_6$ could not be determined until the question of the number of L's available for this purpose had been determined. Again, the question of the L's available for producing $P_6$'s could not be determined until it had been decided how many of the higher products, $P_1$, $P_2$, $P_3$, $P_4$, were to be produced. Still, again, it could not finally be determined how many of these higher products were to be produced until it was known what price they were to have and, therefore, what demand there would be for them. But, since their price would be dependent on the price of the L's entering into them, and the price of L's would be dependent on the price of $P_6$, and the price of $P_6$ would be dependent on its marginal utility, we seem to be in a position where we are obliged to say that nothing could be determined until everything else had been determined. That is, we seem to be trying to break into a completely closed circle. And this is of course true. Nothing *could* be

finally determined until everything else had been determined. As in so many other fields, reaction as well as action is present and the result must be influenced by both. Nevertheless, it is legitimate to represent the real order of causation, when everything is finally settled, in the way we have done. When at last equilibrium would have been reached, *the starting point of this causation*—the point where the fundamental price-determining forces break into the circle —*would be in the marginal significance of the product.*

## Note 9

The modification of our diagram made necessary by the introduction of the element of disutility is easily effected. As before there are two sources from which are derived the forces ultimately determining prices, and these appear at the top, one at the left, the

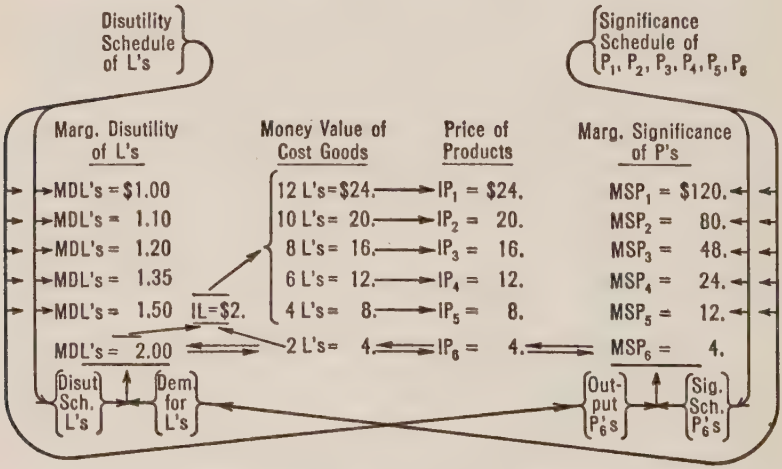


Figure 3. Significance-Disutility Theory

other at the right. The one at the left, however, is different from the old one. This time it is *the disutility schedule of the single primary factor, L,* or, what is the same thing, *the supply schedule of that factor.* Again, as in the former case, we have a process of causation which starts from the marginal utility or significance of

the marginal product, moving thence to the price of that product, thence to the value of 2 L's, then to the price of 1 L. At this point, however, utility or significance finds itself obliged to recognize the influence of *another* force, the disutility of producing L's. For the existence of that disutility makes it impossible for equilibrium to be established until the price of each L is great enough to cover that disutility. Accordingly, we have this time in the lower left-hand corner a reaction between the disutility schedule of L's and the demand for them from which is determined the marginal disutility of supplying these L's, which in turn compels the price of 1 L to be what is needed to express this marginal disutility. That is, the price of 1 L is $2 not only when and because $2 is the marginal significance of the marginal product of L's, but also when and because $2 is the marginal disutility of supplying L's.

## Note 10

The point brought out in the text—that *it is not the absolute magnitude of wants but rather the results conditioned upon their gratification which determines their social importances*—seems obvious enough, yet is constantly disregarded by not a few writers. In consequence, it seems desirable to give it the emphasis derivable from diagrammatic presentation. In the accompanying figure, the open space to the right of the vertical line represents the field of social advantages or importances, while the enclosed space to the left of the vertical line represents the field of individual or private importances estimated as absolute magnitudes. The upper right-hand circle represents one-fifth of the social importance of the contribution of some person, Mr. A we will call him,—the whole of his contribution being assumed to have an importance represented by $5,000. The outer one of the two concentric circles at the left and above—the broken-line one—represents some want of the man contributing the $1,000 worth of service, which want the subject himself estimates at $1,000. The inner one of these two concentric circles—the continuous-line one—represents the real or absolute magnitude of the want in question which is assumed to be only $100. The heavy line connecting the $1,000 circle of social importance with the $1,000

circle of individual importance as estimated by the individual immediately interested signifies that the getting of the $1,000 worth of service, represented by the upper right-hand circle, is conditioned upon giving the man who contributes that service the volume of gratification represented by the outer one of the two concentric circles named. This brings out the relation among the wants and contributions of Mr. A. Of the lower circles, the right-hand one shows the

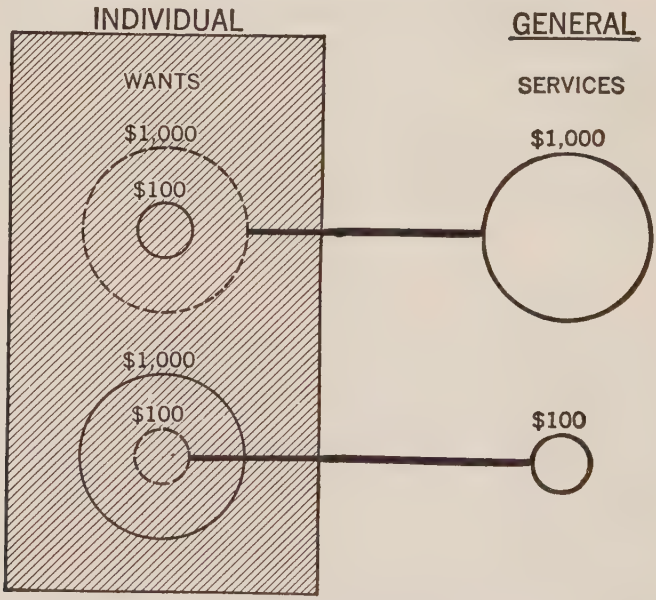


Figure 4. Social versus Individual Importance

social importance of one-fifth of the service of a second person, Mr. B. The inner one of the two lower left-hand circles—the broken-line one—represents the estimate which B, in view of his money income, puts upon a certain want of his, while the absolute magnitude of that want is represented by the larger outer circle—the continuous-line one—with the $1,000 mark. The heavy line connecting the $100 circle of social advantage with the $100 circle of individual want—the dotted one—signifies that the forthcoming of said social advantage is conditioned on the satisfying of this want

only so far as $100 will do it. Under these conditions, it is manifest that if A and B come into competition for the disposal of social resources, A's want which has an effective magnitude of $1,000, though having an absolute magnitude of only $100, will outweigh the want of B which has an effective magnitude of only $100 though its real or absolute magnitude is represented by $1,000. Now, to the unthinking, all this looks very unreasonable, not to say very wicked. The trifling want is treated as if it were the great one; the great want as if it were the trifling one. But there is, broadly speaking, nothing in this view of the matter. The social importances involved are represented by the circles to the right of the line,—the circles located in the social field. It is on these that our eyes should be fixed. A's contribution has a social importance of $1,000; the supplying of that contribution is conditioned on the gratification of a want which A estimates at $1,000; said want, therefore, has a social importance of $1,000. B's contribution on the other hand, has a social importance of only $100; the supplying of that contribution is conditioned on the satisfying of a want which is formally expressed by only $100; said want, therefore, has a social importance of only $100.

## Note 11

The propositions with respect to valuations and demand prices given on page 306 are illustrated in the diagram of Figure 5. Valuations or prices are measured vertically on the line at the left, while the quantity of the commodity supposed to be in possession, actual or contemplated, is measured along the horizontal line at the base. The heavy verticals side by side indicate the valuation or demand price attached to the particular quantity of the commodity which is measured by the distance from zero to the point where the vertical is erected. The commodity under consideration is supposed to be sugar, the unit of quantity 5 pounds, and that of valuation or price 5 cents. Thus if the quantity be 5 pounds, its valuation or demand price will be indicated by the tallest vertical at the left, that is, will be 100 cents; if the quantity be 10 pounds its valuation or demand price will be represented by the second vertical, that is, will be 65

cents; and so on. The line of causation,—the fact that in this principle the quantity of the commodity is the *condition* and the utility or significance or valuation or demand price the *consequence*,—is indicated by the vertical arrows starting from the base line on which quantity is measured. As required by our principles, the verticals representing valuations or demand price grow shorter with every increase in the quantity assumed, being, for example, 75 cents for 30 pounds; 45 cents for 60 pounds; 30 cents for 75 pounds; and so on.

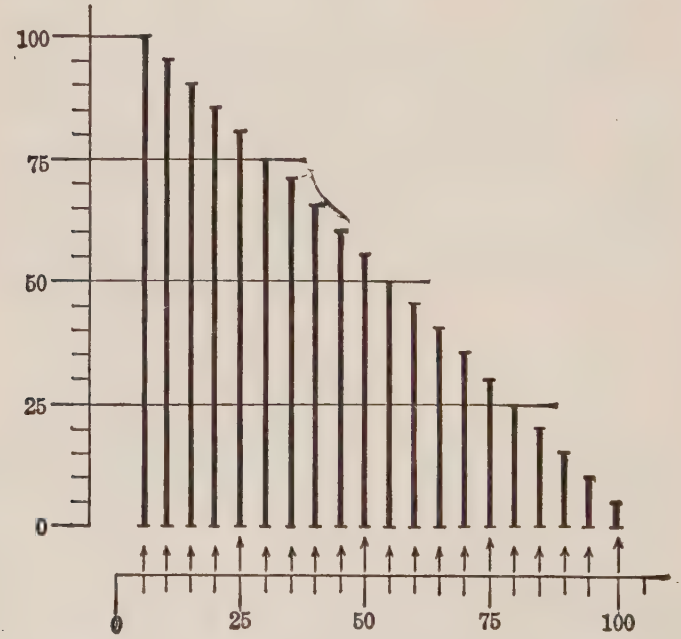


Figure 5. Utility, Valuation, and Demand Price Schedule

That this valuation schedule for sugar is the determinant of the corresponding demand schedule for sugar is evident. Since the consumer's valuation and demand price for the first 5 pounds of sugar is $1.00, it necessarily follows that an *actual* price of $1.00 will make his demand 5 pounds. Similarly, since his demand price for a second

unit is 95 cents, an actual price of 95 cents will make his demand 10 pounds; since his demand price for 15 pounds is 90 cents, an actual price of 90 cents will make his demand 15 pounds; and so on. This is brought out in Figure 6, which shows the particular quantity of demand resulting from each actual price. In this diagram, therefore, the arrows start from the price scale and run from left to

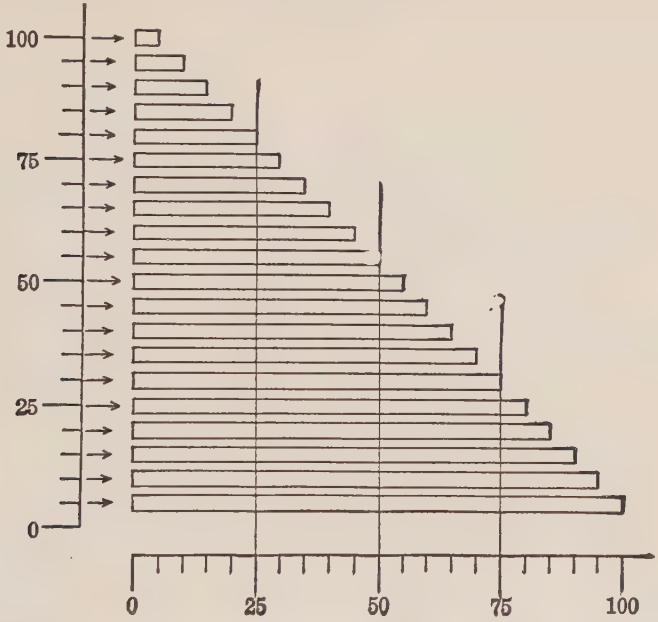


Figure 6. Demand Schedule Resulting from Valuation Schedule in Figure 5

right. A 1-dollar price results in a 5-pound demand; a 95-cent price results in a 10-pound demand; a 90-cent price results in a 15-pound demand; and so on.

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